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Welcome to the 12th International Conference on Reproduction, Pregnancy and Rheumatic Diseases (RHEUMAPREG) 2023

Reproductive Issues in Lupus, Antiphospholipid Syndrome and Other Autoimmune Rheumatic Diseases: Highlights from RHEUMAPREG2023

We invite submissions of original research manuscripts or review articles for a special themed issue of *Frontiers in Lupus*. This is an open access journal and a new edition to the respected *Frontiers* collection of journals. We are offering a significantly reduced publication fee and welcome articles covering any of the topics discussed within the Rheumapreg2023 conference. These include the wide range of reproductive issues for women and men of child-bearing age with rheumatic diseases including SLE, APS, Rheumatoid Arthritis, Psoriatic Arthritis, axial Spondyloarthritis, Juvenile Idiopathic Arthritis, Myositis, Scleroderma, Sjögren's, Vasculitis, and Behçet's.

We welcome manuscripts covering pre pregnancy, antenatal, and intrapartum care as well as challenges in the postnatal period for women with chronic rheumatic disease. Also topics including contraception, family planning and reproductive rights for women of childbearing age with rheumatic disease as well as the many issues around drug treatment of rheumatic disease in pregnancy and lactation, management of life threatening complications of rheumatic disease in pregnancy and manuscripts covering paediatric outcomes for this patient group.

Please submit your manuscripts to .....

LIST OF ORGANIZERS

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Oral Communications Contraception and teratogen knowledge of North American pediatric rheumatologists

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Citation
Edens, C., Hays, K., Huyhn, B., Ronis, T., Phillippi-Cook, K., Edelheit, B., Heitsch, V., Lavallee, C. Contraception and teratogen knowledge of North American pediatric rheumatologists.

Purpose

In the United States and Canada, pediatric rheumatologists care for patients well into their child-bearing years. Adolescents and young adults (AYA) with chronic illnesses engage in sexual relations as often as their peers. Pregnancy prevention, whether due to disease activity, teratogen use, end-organ involvement, or lack of current pregnancy desire, is essential in pediatric

rheumatology care. We sought to understand pediatric rheumatology providers' knowledge of teratogens and contraception appropriateness.

Methods

An electronic survey was distributed to the Childhood Arthritis and Rheumatology Research Alliance (CARRA) providers in the fall of 2020. 248 CARRA members completed the 37-item survey about reproductive health issues facing pediatric rheumatology providers.

Results

Survey response rate was 82%. Participants were mostly female, practicing in the United States and affiliated with an academic hospital (Table 1). Over 50% of respondents were in fellowship or less than 10 years out of training with

TABLE 1: Survey respondent characteristics

Total CARRA members participating	248 (82%)
Country	
United States	232 (94%)
Canada	16 (6%)
Position	
Pediatric Rheumatologist	170 (68%)
Adult/Pediatric Rheumatologist	12 (5%)
Fellow in a pediatric rheumatology program	47 (19%)
Fellow in a combined adult and pediatric rheumatology program	10 (4%)
Rheumatology nurse practioners or physician assistant	9 (4%)
Current practice/training environment	
Academic setting	235 (95%)
Nonacademic setting	13 (5%)
Gender of participants	
Female	184 (74%)
Male	63 (25%)
Chose not to answer	1 (1%)
Percent clinical time	
0-10%	6 (2%)
11-20%	22 (9%)
21-30%	29 (12%)
31-40%	5 (2%)
41-50%	22 (9%)
51-60%	20 (8%)
61-70%	27 (11%)
71-80%	45 (18%)
81-90%	31 (12%)
91-100%	41 (17%)
Percentage of patients between 14-26 years old	
0-24%	14 (5%)
25-49%	121 (49%)
50-74%	104 (42%)
>75%	9 (4%)

more than 60% of their time devoted to clinical care. 70% of respondents had at least 1 pregnant AYA patient in their career, 4% having >15 pregnancies.

Majority of those surveyed were able to identify key teratogens used in pediatric rheumatology, however some pregnancy-compatible medications were incorrectly identified as teratogenic (Figure 1). Estrogen-containing contraception was erroneously identified as inappropriate in those without antiphospholipid antibodies (APLs) or other contraindications for estrogen (Figure 2). Progestin-only methods were underrecognized as appropriate in those with positive APLs or thrombus history, with hormonal IUDs and implants the most improperly identified (Figure 2). Emergency contraception, an intervention with no disease-specific restrictions, was not recognized by the majority of pediatric rheumatologists as safe for those with SLE with negative or positive APLs (Figure 2). Top three reproductive health concerns reported by pediatric rheumatologists: teratogenic medications, contraception, and long-term medication safety, aligning with knowledge gaps identified.

Contraception Type	-VTE/APLs	+VTE/APLs
Condoms	98%	95%
Combined Hormone OCP	64%	3%
Contraceptive Ring/Patch	66%	12%
Progesterone Only Pill	95%	85%
DMPA Injection	92%	71%
Hormonal Implant	87%	54%
Hormonal IUD	87%	54%
Copper IUD	94%	90%
Emergency Contraceptive Pill	82%	47%

Systemic lupus erythematosus = SLE; Venous thromboembolism = VTE; Anti-phospholipid antibodies = APLs; Oral Contraceptive Pill=OCP; Depot medroxyprogesterone acetate = DMPA; Intrauterine device = IUD

* Compatibility was adapted from the 2020 American College of Rheumatology Guideline for the Management of Reproductive Health in Rheumatic and Musculoskeletal Diseases (Arthritis & Rheumatology; Vol 72. No 4, April 2020, p531-532)

Dark green = Highly compatible; Light green = Likely compatible; Pink=Unlikely compatible; Red = Not compatible

FIGURE 1
Pediatric Rheumatologists' Reporting of Contraception Compatability* in SLE Patients with and without positive APLs or Thrombus History.

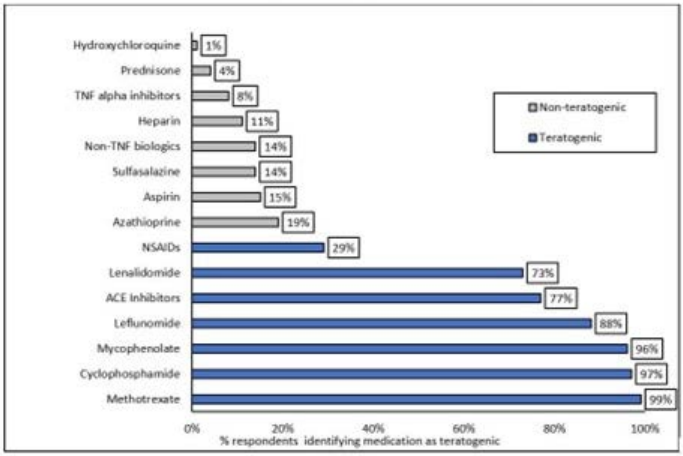


FIGURE 2
Percent of pediatric rheumatologists identifying medications as teratogenic.

Conclusions

Education of North American pediatric rheumatologists regarding safe, reliable contraception and emergency contraception for their patients of child-bearing age is needed. Teratogens awareness is also warranted to aid in counseling. Improved reproductive health education efforts will prevent unplanned or high-risk pregnancies in those cared for by pediatric rheumatologists, fulfilling pediatric rheumatologists' self-identified needs.

Quality improvement initiative to increase contraception documentation in an academic rheumatology clinic

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Citation
Siegel, C., Jannat-Khah, D., Mikhaylov, A., Abramson, E., Pan, N., Sammaritano, L. Quality improvement initiative to increase contraception documentation in an academic rheumatology clinic.

Purpose

Only one-third of reproductive-aged women with systemic rheumatic diseases are prescribed effective contraception, even when prescribed a teratogen. Although recommended by rheumatology guidelines, contraception counseling and documentation by rheumatology providers is inadequate. The aim of this quality improvement (QI) study was to increase

the rate of provider documentation of contraception use for female patients aged 18-45 seen in an academic rheumatology clinic from 11% to 25% over 3 months.

Methods

We administered a baseline survey of clinical staff including demographics, barriers to contraception documentation, and desired interventions. We conducted 4 Plan-Do-Study-Act (PDSA) cycles with interventions designed to address identified barriers. The primary outcome measure was the percentage of female patients aged 18-45 with contraception documentation in the chart; the main balancing measure was the percentage with smoking documentation. We tracked these measures at 2-week intervals.

Results

Survey respondents (n=17) were 65% female; 47% White, 29% Asian/Indian, 6% Black, 18% Other/Prefer not to respond; 82% were Not Hispanic/Latino. Professional roles included 47% Rheumatology Fellows, 35% Registered Nurses, 18% Personal Care Assistants; 71% of respondents reported <5 years in their role, 18% reported 11-20 years, and 12% reported 5-10 years.

The most frequently reported barrier to contraception documentation was not having been told to document this information (n=6); others were lack of awareness, time, comfort, and disagreeing that rheumatology patients should be asked routinely about contraception use. Respondents desired education, dedicated time, conversation scripts, and documentation instructions.

Interventions included an introductory educational session, suggested scripts for patient interactions, and documentation instruction; an email reminder from nursing leadership; and a progress presentation. The rate of documentation surpassed and was sustained above the 25% goal, while smoking status documentation rates remained steady (Figure).

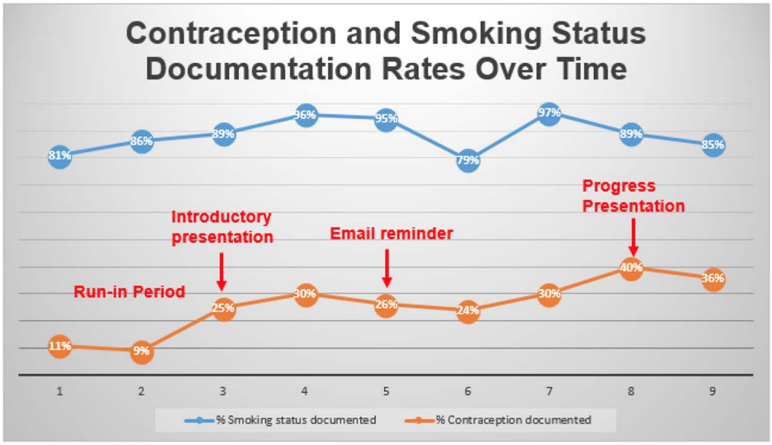


FIGURE 1
Time graph tracking rates of documentation of contraception use (primary outcome measure) and of smoking status (balancing measure) in 2-week intervals.

Conclusion

With implementation of a multi-cycle intervention targeting barriers identified by clinical staff, we exceeded the aim of increasing the contraception documentation rate from 11% to 25%. Further interventions are planned with the aim of increasing the rate of contraception documentation to 50% over the subsequent 3-month period. Future phases of this initiative will focus on increasing physicians' contraceptive counseling and women's health referrals for rheumatology patients prescribed teratogenic medications.

Lack of folylpolyglutamate synthetase activity and methotrexate polyglutamylation as underlying mechanisms explaining why methotrexate does not impair sperm quality

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Citation
Perez, L.F., Röder, E., Krijthe, B., Koppen, L.K., van Adrichem, R., Zirkzee, E., Griffioen, P., Peeters, K., Lin, M., Struijs, E., Jansen, G., van Doorn, M., de Jonge, R., Dohle, G., Dolhain, R. Lack of folylpolyglutamate synthetase activity and methotrexate polyglutamylation as underlying mechanisms explaining why methotrexate does not impair sperm quality.

Purpose
We have previously showed that exposure to methotrexate (MTX) was not associated with testicular toxicity. A question that remains unanswered is whether MTX and its bioactive forms, the MTX-polyglutamates (MTX-PGs) can be found in spermatozoa. The intracellular conversion of MTX to MTX-PGs is dependent on a process that is catalyzed by the enzyme folylpolyglutamate synthetase (FPGS). Whether intracellular MTX and the bioactive MTX-PGs can be detected in the spermatozoa and whether spermatozoa have the enzymatic capabilities (FGPS-activity) for the formation of the MTX-PGs has never been studied before.

Methods
This proof-of-concept translational study was part of the iFAME-MTX study. Blood and semen samples were obtained from 10 adult-men diagnosed with an IMID (RA, SpA, psoriasis) after 13 weeks of exposure to MTX (cases) and from 4 adult-healthy men (controls). Measurement of MTX-PGs in spermatozoa and RBCs was determined by LC-MS/MS methods using stable

isotope labelled MTX-PGs1-6 as internal standards. FPGS catalytic activity in spermatozoa, erythrocytes and PBMCs was analyzed in 10 ng protein extracts.Lastly, RNA was isolated from spermatozoa and quantitative real-time PCR were performed to quantify the mRNA-expression profiles of folate genes in spermatozoa. Continuous variables were compared using a one-way analysis of variance and a paired t-test.

Results

MTX-PG1 was the predominant form of MTX-PGs detected in spermatozoa. Other MTX-PGs forms (MTX-PG2-5) were not or hardly detectable in spermatozoa after MTX-exposure (Figure 1A). Furthermore, comparisons with other cell types revealed that MTX-PGs accumulation in spermatozoa is markedly lower than in RBCs and PBMCs (Figure 1B). Consistent with the lack of MTX-PGs formation, FPGS catalytic activity in spermatozoa was statistically significant lower (5.1) compared to PBMCs (183, p=<0.005)). Regarding, mRNA expression profiles of folate genes in spermatozoa, a high FPGS 8PR/WT ratio was observed compared to PBMCs.

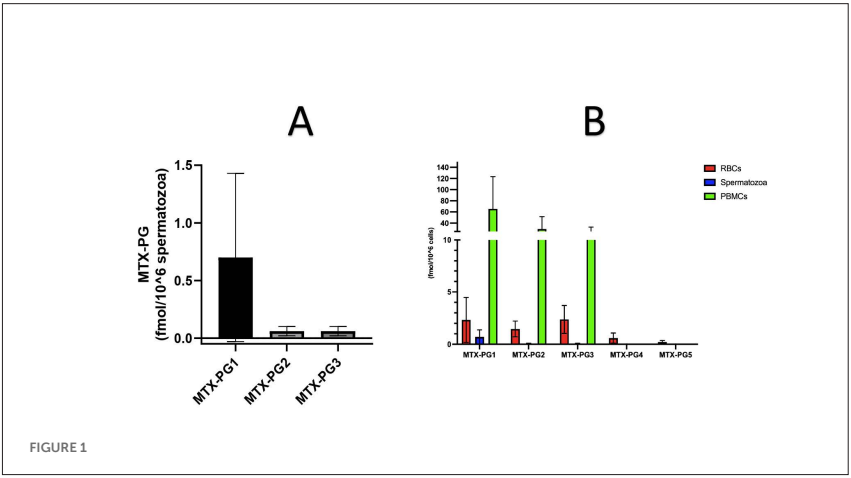


FIGURE 1

Conclusions

This is the first study ever conducted to measure the concentration of MTX-PGs and concomitant FPGS activity in spermatozoa. Hardly any bioactive forms of MTX (MTX-PG) could be detected in spermatozoa. This is related to the fact that spermatozoa have very low FPGS activity and hence lack the capacity to form MTX-PGs.

Increased fertility among 10865 men with chronic inflammatory joint diseases in Norway

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Citation

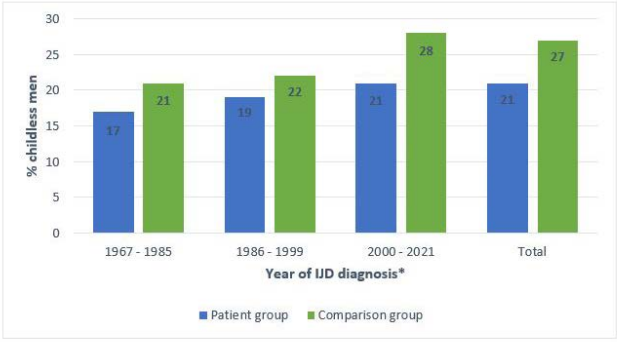
Sigmo, G.D., Hauge, S., Hufthammer, K.O., Wallenius, M., Salvesen, K.Å., Bakland, G., Daltveit, A.K., Fevang, B. Increased fertility among 10865 men with chronic inflammatory joint diseases in Norway.

Background
Fertility has been reported impaired in Norwegian women with inflammatory joint diseases. There is, however, limited data regarding fertility in male patients but an association between inflammatory arthritis and reduced male fertility has been suggested, underlining the need for a large-scale study. In the current project, we address this knowledge gap.

Objectives
To examine whether inflammatory joint diseases (IJDs) have an impact on men's fertility, measured as number of children per man and proportion of childless men.

Methods
We performed a nation-wide, population-based cohort study. Male patients with IJDs (n = 10,865) collected from the Norwegian Arthritis Registry in 2021 were individually matched 1:5 on birth year, sex, and county of residence, with individuals without IJDs obtained from the National Population Register (n = 54,325). Data regarding births was obtained from the Medical Birth Registry of Norway. We compared the mean number of children per man in the patient group and in the comparison group using paired t-tests, and the proportion of childless men using Cochran–Mantel–Haenszel chi-squared tests.

Results
The mean number of children per man in the patient group was 1.80 versus 1.69 in the comparison group ($p < 0.001$). 21% of our patients were childless vs 27% in the comparison group ($p < 0.001$). Both these differences were highest for those diagnosed after year 2000, but present at all times (Figure 1). The finding of higher fertility among patients remained consistent regardless of age at diagnosis, except for those diagnosed at age 0 – 19 years (Table 1).



*Disease onset divided into three eras, reflecting major changes in treatment strategy for the IJDs – methotrexate from the late 1980s and biological treatment from the early 2000s.

FIGURE 1
Proportion of childless men according to year of diagnosis.

TABLE 1: Mean number of children and proportion of childless men according to age at diagnosis

Age at diagnosis	No. patients (Percentage)	Mean no. of children per man			Percentage childless men		
		Patients	Comparisons	*P*-value	Patients	Comparisons	*P*-value
All	**10865 (100)**	**1.80**	**1.69**	**<0.001**	**21**	**27**	**<0.001**
0 – 19*	452 (2)	1.20	1.22	0.77	43	45	0.52
20 - 29	1759 (16)	1.36	1.26	<0.001	36	41	<0.001
30 - 39	2191 (20)	1.74	1.58	<0.001	21	29	<0.001
40 - 49	2356 (22)	1.92	1.80	<0.001	17	23	<0.001
50 - 59	2184 (20)	2.06	1.93	<0.001	14	20	<0.001
60 - 69	1362 (13)	2.04	1.99	0.10	12	17	<0.001
70 – 79**	520 (5)	1.89	1.75	0.01	15	20	0.008
80 – 89**	41(0.4)	1.00	0.84	0.30	37	46	0.35

*JIA not included.
** The Medical Birth Registry contains information about all births in Norway since 1967, and children born before this are not registered. This leads to an under-reporting of children in the oldest age groups.

Conclusion

In this large nationwide study, fertility in male patients with IJDs was not reduced compared to controls, neither when examining the number of children per man, nor when looking at the proportion of childless men. Interestingly, we observed a higher fertility rate in male IJD patients than in the comparison group. The reason for this observation is unknown. Factors associated with getting or having an IJD may influence fertility and constitute interesting subjects for further studies.

Acute cardiovascular events in autoimmune rheumatic disease pregnancies

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Citation
Dhital, R., Baer, R., Guma, M., Kalunian, K., Chambers, C. Acute cardiovascular events in autoimmune rheumatic disease pregnancies.

Purpose
Cardiovascular diseases (CVDs) affect 1-4% of pregnancies. Autoimmune rheumatic diseases (ARDs) are associated with a 1.5 to 3-fold higher CVD risk, and antiphospholipid syndrome (APS) is linked to recurrent arterial and venous thromboembolism and pregnancy loss. Research on the impact of ARDs on maternal cardiovascular health is limited. This study compares the incidence of CVEs in pregnant women with ARDs and primary APS to a general population of pregnant women, using a large California cohort.

Methods
We retrospectively analyzed live births in California between 2005-2020. We identified ARDs, APS, and acute CVEs during pregnancy and up to 6 weeks postpartum using ICD codes. We compared the baseline characteristics

TABLE 1: Maternal characteristics (n,%) of live births in the State of California (2005-2020) among individuals with ARDs, primary APS and a comparison group without an ARD or APS, n = 7,031,432

		No ARD or APS	Any ARD	p-value	Primary APS	p-value
		n (%)	n (%)		n (%)	
Sample		7,004,334	19,340		7,758	
Demographic characteristics						
Maternal age (years)	< 18	141,695 (2.0)	101 (0.5)	< 0.0001	29 (0.4)	< 0.0001
	18 – 34	4,672,196 (66.7)	11,426 (59.1)	< 0.0001	4,647 (59.9)	< 0.0001
	35 - < 45	1,105,941 (15.8)	4,508 (23.3)	< 0.0001	2,408 (31.0)	< 0.0001
	45+	13,733 (0.2)	78 (0.4)	< 0.0001	49 (0.6)	< 0.0001
Race/ ethnicity	White, non-Hispanic	1,887,861 (27.0)	6,431 (33.3)	< 0.0001	4,177 (53.8)	< 0.0001
	Hispanic	3,492,824 (49.9)	7.820 (40.4)	< 0.0001	2,118 (27.3)	< 0.0001
	Black	346,220 (4.9)	1,262 (6.5)	< 0.0001	373 (4.8)	0.5835
	Asian	942,201 (13.5)	2,455 (12.8)	0.0043	592 (7.6)	< 0.0001
	Other	335,228 (4.8)	1,361 (7.0)	< 0.0001	498 (6.4)	< 0.0001
Expected payer for delivery	Private	3,337,678 (47.7)	12,046 (62.3)	< 0.0001	5,551 (71.6)	< 0.0001
	Public	3,249,908 (46.4)	6,389 (33.0)	< 0.0001	1,871 (24.1)	< 0.0001
	Self-pay	182,340 (2.6)	152 (0.8)	< 0.0001	76 (1.0)	< 0.0001
	Other	224,305 (3.2)	723 (3.7)	< 0.0001	254 (3.3)	0.7201
Maternal education	< 12 years	1,456,664 (20.8)	1,946 (10.1)	< 0.0001	588 (7.6)	< 0.0001
	12 years	1,714,319 (24.5)	4,054 (21.0)	< 0.0001	1,243 (16.0)	< 0.0001
	> 12 years	3,549,988 (50.7)	12,457 (64.4)	< 0.0001	5,554 (71.6)	< 0.0001
Clinical characteristics						
Pre-pregnancy BMI[a]	<18.5	249,080 (3.6)	691 (3.6)	0.8996	219 (2.8)	0.0005
	18.5 to < 25	2,715,634 (38.8)	7,839 (40.5)	< 0.0001	3,281 (42.3)	< 0.0001
	25 to < 30	1,508,158 (21.5)	4,354 (22.5)	0.0009	1,693 (21.8)	0.5534
	> = 30	1,296,228 (18.5)	4,247 (22.0)	< 0.0001	1,653 (21.3)	< 0.0001
HTN	None	6,419,794 (91.7)	15,435 (79.8)	< 0.0001	6,665 (85.9)	< 0.0001
	Preexisting	87,225 (1.3)	946 (4.9)	< 0.0001	250 (3.2)	< 0.0001
	Gestational	197,842 (2.8)	836 (4.3)	< 0.0001	224 (2.9)	0.7387
	Preeclampsia[b]	172,067 (2.5)	11,345 (7.0)	< 0.0001	380 (4.9)	< 0.0001
DM	None	6,305,007 (90.0)	16,726 (86.5)	< 0.0001	6,652 (85.7)	< 0.0001
	Preexisting	74,660 (1.1)	446 (2.3)	< 0.0001	144 (1.9)	< 0.0001
	Gestational	624,667 (8.9)	2,168 (11.2)	< 0.0001	962 (12.4)	< 0.0001
Hyperlipidemia[b]		15,536 (0.2)	202 (1.0)	< 0.0001	86 (1.1)	< 0.0001
Smoking during pregnancy*		147,811 (2.1)	879 (4.50	< 0.0001	246 (3.2)	< 0.0001
Alcohol during pregnancy[b]		18,639 (0.3)	125 (0.7)	< 0.0001	33 (0.4)	0.0065
Drug use during pregnancy[b]		116,567 (1.7)	762 (3.9)	< 0.0001	145 (1.9)	0.1587

*ARD: autoimmune rheumatic disease, APS: antiphospholipid syndrome, BMI: body mass index, HTN: hypertension, DM: diabetes.

TABLE 2: Risks of acute cardiovascular events during pregnancy or within 6 weeks post-partum by autoimmune rheumatic diseases, 2005-2020 aRR adjusted for all factors in table 1 except gestational diabetes, gestational HTN, preeclampsia.

	CV events n (row %)	RR (95% CI)	aRR (95% CI)
No ARD or APS (n = 7,004,334)	2,4383 (0.4)	Reference	Reference
Any ARD or APS (n = 27,097)	926 (3.7)	9.8 (9.2, 10.5)	7.3 (6.9, 7.6)
Primary APS (n = 7,758)	538 (6.9)	19.9 (18.3, 21.7)	15.0 (13.7, 16.3)
Any ARD (n = 19,340)	388 (2.0)	5.8 (5.2, 6.4)	4.3 (3.9, 4.7)
RA (n = 6,478)	94 (1.5)	4.2 (3.4, 5.1)	3.1 (2.5, 3.8)
SLE (n = 8,422)	259 (3.1)	8.8 (7.8, 10.0)	6.4 (5.7, 7.2)
SLE with concomitant APS (n = 513)	55 (10.7)	30.9 (23.6, 40.1)	20.2 (15.5, 26.4)
SLE without APS (n = 7,909)	204 (2.6)	7.4 (6.5, 8.5)	5.4 (4.7, 6.2)
SLE with lupus nephritis (n = 903)	77 (8.5)	24.5 (19.6, 30.6)	14.1 (11.3, 17.7)
SLE without lupus nephritis (n = 7,519)	182 (2.4)	7.0 (6.0, 8.0)	5.2 (4.5, 6.0)
Spondyloarthritis (n = 3,415)	30 (0.9)	2.5 (1.8, 3.6)	1.8 (1.2, 2.5)
Sjogren syndrome, overall (n = 1,472)	28 (1.9)	5.5 (3.8, 7.9)	4.7 (3.2, 6.8)
Sjogren syndrome associated with another ARD (n = 421)	16 (3.8)	10.9 (6.7, 17.8)	9.4 (5.8, 15.3)
Sjogren syndrome not associated with another ARD (n = 1,051)	12 (1.1)	3.3 (1.9, 5.8)	2.8 (1.6, 5.0)
Other rheumatic conditions (SSc, inflammatory myositis, vasculitides) (n = 705)	27 (3.8)	11.0 (7.5, 16.0)	8.3 (5.7, 12.2)
SSc (n = 383)	17 (4.4)	12.7 (7.9, 20.5)	9.7 (6.0, 15.6)
Inflammatory myositis (Dermatomyositis, Polymyositis) (n = 165)	< 5	n/c	n/c
Vasculitides (PAN, GPA/EGPA/MPA, GCA, Takayasu disease) (n = 163)	7 (4.3)	12.3 (5.9, 25.9)	9.2 (4.4, 19.5)

*ARD: autoimmune rheumatic disease, APS: antiphospholipid syndrome, RA: rheumatoid arthritis, SLE: systemic lupus crythematosus, SpA: spondyloarthritis.

and CVE incidence among pregnant women with ARDs and primary APS to those without. We used logistic regression to calculate the relative risks (RRs) of the association. We performed a mediation analysis to investigate if pregnancy complications such as gestational diabetes mellitus (GDM) and pre-eclampsia mediated the association between ARDs and CVEs.

Results

We identified pregnant women with ARDs (n=19,340), primary APS (n=7,758), and without either condition (n=7,004,334). Maternal CVEs occurred in 2% of women with ARDs, 6.9% with primary APS, and 0.4% in the comparison group. The adjusted risk of acute CVEs was 4- and 15-fold higher for pregnant women with ARDs and primary APS, respectively. SLE increased maternal CVE risk by 6-fold, further increased with concomitant APS or nephritis (aRR 20.2 and 14.1, respectively). Only 12% of the excess association of acute CVEs with an ARD was mediated by preeclampsia and < 1% by GDM. About 30% of the maternal CVEs in ARD occurred postpartum and had a 6-fold higher risk of hospital readmission than the comparison group.

Conclusions

Pregnant women with ARDs and primary APS had higher risks for maternal CVEs, most notably SLE with concomitant APS or nephritis. Postpartum CVEs comprised 30% of CVEs in ARD pregnancies, and were more likely to be readmitted than the comparison group, highlighting the need for close monitoring of CV risks and events even after delivery. Overall, this study sheds new light on the effect of ARDs on maternal cardiovascular health.

TNF inhibitor use increases birthweight in pregnant rheumatoid arthritis women by antagonizing the effect of soluble FMS-like tyrosine kinase-1

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Citation
Witte-Quaak, C.H., Kluivers, A.C., Smeele, H.T., Neuman, R.I., Saleh, L., Visser, W., Danser, A.J., Dolhain, R.J. TNF inhibitor use increases birthweight in pregnant rheumatoid arthritis women by antagonizing the effect of soluble FMS-like tyrosine kinase-1.

Purpose
TNF inhibitor (TNFi) use during pregnancy is associated with increased birthweight of the offspring of women with rheumatoid arthritis (RA). Since an imbalance between the angiogenic factors soluble Fms-like tyrosine kinase-1 (sFlt-1) and placental growth factor (PlGF) associates with birthweight, we hypothesize that the TNFi-induced increase in birthweight involves an improved angiogenic imbalance. This study aimed to examine whether TNFi use by pregnant women with RA lowers sFlt-1 and/or elevates PlGF or whether TNFi antagonizes the impact of these factors on birthweight.

Methods
sFlt-1 and PlGF were measured in the first, second, and third trimester of pregnancy in the PreCARA cohort, and related to the use of TNFi. In addition, the impact of sFlt-1 and PlGF on birthweight in relation to TNFi was determined.

Results
A total of 158 women were included. 52.5% of all patients ever used TNFi during pregnancy, while 29.1% used TNFi during all trimesters of pregnancy. In line with the literature, both sFlt-1 and PlGF increased during pregnancy, whereas their ratio declined. After correction for parity, DAS28CRP(3) score, sex of the newborn, and the use of hydroxychloroquine, sulfasalazine or prednisone, and taking into consideration the trimester-related variation in the levels of sFlt-1 and PlGF ratio, there was no significant difference in sFlt-1 or the sFlt-1/PlGF ratio between patients that did, or did not use TNF inhibitors (sFlt-1: β -0.004, 95% CI -0.077; 0.069 p = 0.908, PlGF β -0.081, 95% CI -0.198; 0.037 p = 0.176 and sFlt-1/PlGF ratio: β 0.078, 95% CI -0.079; 0.232 p = 0.334). In women that did not use TNFi, sFlt-1 displayed its known negative correlation with birthweight (r = -0.462, p<0.001), and birthweight

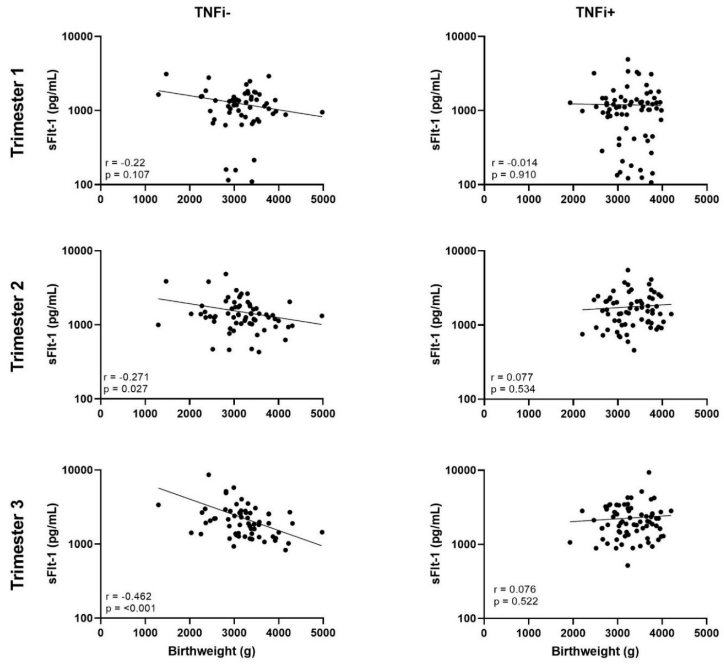


FIGURE 1

percentile (r =-0.332 , p = 0.008). Remarkably, in TNFi users, these correlations were absent.

Conclusion

Although TNFi use by pregnant women with RA does not affect sFlt-1, PlGF, or their ratio, it did influence birthweight by antagonizing the negative association between sFlt-1 and birthweight.

Tacrolimus efficacy and safety in caucasian pregnant women with lupus nephritis

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Purpose
Although tacrolimus can be safely used to prevent or manage flare of lupus nephritis (LN) during pregnancy, literature reports are limited, especially in Caucasian patients. We aimed at describing our experience on the use of tacrolimus in LN during pregnancy.

Methods
We considered SLE women with a previous diagnosis of LN who received tacrolimus during pregnancy. Remission was defined as clinical-SLEDAI=0.

Results
We evaluated nine pregnancies in eight patients, all Caucasian. In 6/9 cases, SLE was in remission at conception.

All patients were on cardioaspririn and hydroxychloroquine during pregnancy.

Patients 1-2 took tacrolimus and belimumab before conception. Belimumab was discontinued at pregnancy diagnosis. In case 1, no other immunosuppressant was needed. Case 2 had active SLE before conception. Due to persistent activity, azathioprine was added in the second trimester and tacrolimus dosage was increased in the third trimester.

In case 3, 4 and 5 tacrolimus was added to azathioprine in the second trimester due to increasing proteinuria.

TABLE 1

Treatment during pregnancy: AZA: azathioprine, Bel: belimumab, CsA: cyclosporine, GC: glucocorticoids, LN: lupus Nephritis, ND: not done, NL: nPDN: prednisone, Prot: proteinuria, Tac: tacrolimus

Case	Class LN	Lenght of disease remission before pregnancy (months)	Preconception treatment (mg/die)	First trimester treatment (mg/die)	Prot First trimester (g/24h)	Second trimester treatment (mg/die)	Prot second trimester (g/24h)	Third trimester treatment (mg/die)	Prot third trimester (g/24h)
1	III	60	**Tac 2** Bel	**Tac 2**	0,23	**Tac 2**	0,07	**Tac 2**	0,16
2	IV-V	0	**Tac 4** PDN 12.5 Bel	**Tac 4** PDN 12.5	1,27	**Tac 4** PDN 12.5 AZA 50	0,90	**Tac 5** PDN 7.5 AZA 50	2,48
3	IV	0	AZA 100 PDN 5	AZA 100 PDN 25	0,99	AZA 100 PDN 25 **Tac 6**	2,71	AZA 100 PDN 10	4,46
4	V	18	AZA 100	AZA 100	0,26	AZA 100 **Tac**	5,03	AZA 100 **Tac 4**	2,02
5	V	18	AZA 100 PDN 5	AZA 100 PDN 5	0,89	AZA 100 PDN 5 **Tac 2**	1,16	AZA 100 PDN 5 **Tac 4**	1,96
6	IV	60	AZA 50	AZA 50	0,62	AZA 100	1,20	GC pulse CsA 5 **Tac 6**	2,97
7	ND	228	No treat	CsA 50	3,80	CsA 50 **Tac 6**	9,80	CsA ↓ **Tac 6**	1,35
8	II	3	**Tac 4** PDN 5	**Tac 4** PDN 5	0,59	ND	ND	ND	ND
9	IV	6	**Tac 2.5**	**Tac 2.5**	0,12	ND	ND	ND	ND

Case 6 received azathioprine before pregnancy. At 30th GW she had a flare of LN, treated with pulse methylprednisolone IV and tacrolimus.

Case 7 had a LN flare in the first trimester, treated with cyclosporine then switched to tacrolimus in the second trimester for inefficacy.

Cases 8 and 9 were on tacrolimus since pre-conceptional time. They are in second trimester with stable disease.

During pregnancy patient 3 had hypertension, treated with methyldopa. Case 6 had gestational diabetes mellitus. Patient 5 had two upper respiratory tract infections during pregnancy, treated with amoxicillin.

In all cases, women delivered a live birth baby. In 7/8 cases there was a preterm birth, with a mean of 34.5 GW at delivery. Mean weight at birth was 2377,33 g (± 845,15g). In case 3, 4 and 5 a caesarean section was performed.

No flares occurred during post-partum period.

Conclusions

In our experience, tacrolimus was effective in maintaining remission and in treating LN flares during pregnancy, as in only one case it was interrupter for inefficacy. It also showed a good safety profile, since only one woman had two minor adverse events and no foetal complications occurred.

Maternal and neonatal antibody levels upon pertussis vaccination in pregnant women on immune-modulating therapy for rheumatic disease

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Citation

Ghalandari, N., Immink, M., Roder, E., Bruijning-Verhagen, P., Smeele, H., Crijns, H., van der Maas, N., Bekker, M., Sanders, E., Dolhain, R. Maternal and neonatal antibody levels upon pertussis vaccination in pregnant women on immune-modulating therapy for rheumatic disease.

Introduction
While protection against pertussis following maternal tetanus-diphtheria-and-acellular-pertussis (Tdap) vaccination has been demonstrated in term-born infants from healthy mothers, no evidence is available on Tdap vaccination in combination with immune-modulating therapy during pregnancy.

Purpose
In this pilot-study, we explored whether treatment with Tumor Necrosis Factor alpha inhibitors (TNFis) in pregnant patients with rheumatic disease interferes with Tdap vaccine responses and/or affects maternal IgG antibody concentrations against the relevant antigens in the newborns.

Methods
Patients included by a rheumatologist during pregnancy received a Tdap vaccination in their late-second or early-third trimester. Blood samples were drawn during the first trimester, three months after delivery and from the umbilical cord. IgG antibody levels against Tdap-included antigens were measured using a bead-based multiplex immunoassay. Findings on patients exposed to TNFis were compared with those from TNFi-unexposed patients and with data from a historical comparator study among healthy Tdap vaccinated mother-infant-pairs (n=53).

Results
66 patients (46 exposed and 20 unexposed to TNFIs) were enrolled. No differences in IgG antibody levels against Tdap-included antigens were observed between TNFi-exposed and unexposed patients before and after Tdap vaccination (Figure 1). In cord sera however, antibody levels against pertussis toxin were significantly lower after TNFi-treatment (35.94IU/mL, 95%CI 20.68-62.45) compared with no TNFis (94.61IU/mL, 95%CI 48.89-183.07) and with cord blood from the comparison cohort of healthy women-infant-pairs (125.12IU/mL, 95%CI 90.75-172.50). We observed similar differences for filamentous hemagglutinin, pertactin, tetanus toxoid, and diphtheria toxoid.

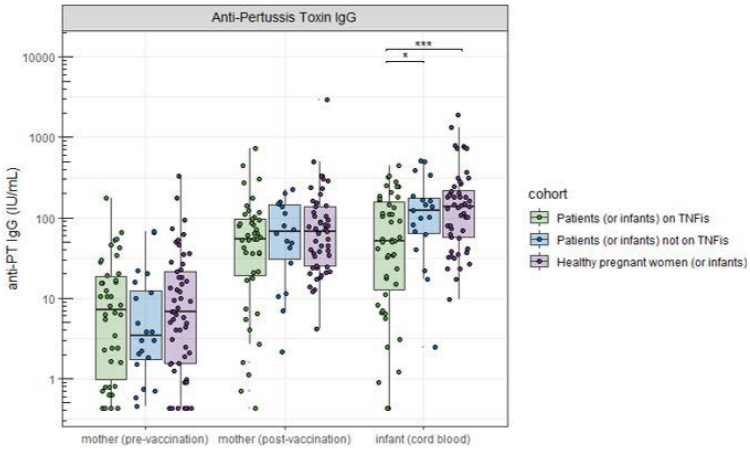


FIGURE 1
Anti-Pertussis toxin (anti-PT (IgG) concent rations (IU/ml) before and after vaccination and in cord sera, represented for women exposed or unexposed to TNFis, or healthy pregnant women, including their offspring. X-axis: type and time-point of blood sample draw. Y-axis: IgG antibody concentration against pertussis toxin (IU/ml). Significance * p<0.05, **p<0.01, ***p<0.001.

Conclusions

These preliminary data indicate no reduced IgG antibody response upon maternal Tdap vaccination in pregnant women following immune-modulating treatment, although our findings suggest that TNFis during pregnancy induce lower maternal antibody levels against Tdap-included antigens in newborns.

The long-term neurodevelopmental outcome of children born to systemic sclerosis women: Neuropsychiatric assessment through a set of validated tools

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Purpose

considering previous literature on children born to mothers with other systemic autoimmune diseases[1], here we focused on the neurodevelopment (ND) of children born to SSc mothers, that is still an unexplored issue.

Methods

Sc mothers attending our Centre (01/08/2021-30/06/2022) were asked for the availability to receive a pediatric neuropsychiatric (NP) evaluation for their children aged <=18years old.

The evaluation included:

- cognitive functioning (Griffiths Mental Development Scales-GMDS III; Wechsler Scale for corrected age)
- adaptive functioning (Vineland Adaptive Behavior Scales-VABS)
- behavioral problems (Child Behavior CheckList-CBCL, fulfilled by the mothers; Youth Self Report-YSR, for children >=11years)
- quality of life (Pediatric Quality of Life Inventory-PedsQL 4.0, administered to both mothers/children)

- anxiety, depression, somatic disorders (self-administered psychiatric scales for children/adolescents-SAFA, A-D-S)

- medical history, including sleep disorders

SSc features and pregnancy course data were retrieved from clinical charts.

Results

20 children (F/M=1:1; median age:8[6-11]years) born to 12 SSc mothers were evaluated: 4 were born before and 16 after SSc onset; 4 were born preterm (1 twin pregnancy). 1 child already had a diagnosis of autism spectrum disorder (ASD).

- All the subjects showed normal cognitive and adaptive functioning (Table 1), except the ASD-affected child.

- From CBCL and YSR, borderline scores emerged in 1/20 and 1/6 and pathologic scores in 3/20 and 3/6 subjects (Table 1) in extra-academic/social activities.

- Discrepancy between mothers and children was observed in QoL: overestimation from maternal side was found for all the areas, particularly regarding physical health, emotions and sociality.

- A trend toward depressive risk was recorded in 4/12 subjects.

- In 9/20 subjects, sleep disorders were reported: nocturnal awakenings, difficulties in falling asleep/insomnia, snoring, parasomnias, nocturnal pavor.

Table 1 shows NP tests results for every child evaluated: no associations with SSc features and pregnancy course emerged.

TABLE 1: Characteristics of SSc women and of their offspring

Mothers	Antibody	Cutaneous subtype	Digital Ulcers	ILD	Children	GW at birth, APO (°,^)	Cognitive domain	Adaptive behavior	Social and behavioral domain	Sleep disorders
1	anti-Topo1	lcSSc	1	0	M, 12 y	40	N	N	**A**	0
					M, 10 y	40	N	N	N	0
2	ANA	lcSSc	0	0	M, 7 y*	40	**A**	**A**	**A**	**1**
					F, 5 y	40	N	N	N	**1**
3	anti-Th/To	lcSSc	1	0	M, 13 y	39	N	N	**A**	0
					F, 9 y	39	N	N	N	**1**
4	anti-Topo1	dcSSc	1	1	•F, 11 y	39	N	N	**A**	**1**
					M, 5 y	39	N	N	N	0
5	anti-Topo1	dcSSc	0	1	•F, 11 y	39	N	N	**A**	**1**
					M, 2 y	35°	N	N	N	**1**
6	ACA	lcSSc	0	0	M, 3 y	41	N	N	N	**1**
7	anti-Topo1	lcSSc	0	0	•F, 17 y	32^	N	N	**B**	0
					•F, 13 y	39	N	N	N	0
					M, 9 y	39	N	N	N	0
8	ACA	lcSSc	0	0	F, 1 y	39	N	N	N	0
9	anti-Topo1	dcSSc	1	1	F, 8 y§	31°	N	N	N	**1**
					M, 8 y§	31°	N	N	N	0
10	anti-U1-RNP	lcSSc	0	0	F, 5 y	38	N	N	N	0
11	anti-Topo1	dcSSc	0	0	M, 3 y	39	N	N	N	**1**
12	anti-U1-RNP	lcSSc	1	0	F, 1 y	40	N	N	N	0

Abbreviations= ACA: anti-centromere antibodies; ANA: anti-nuclear antibodies; APO: adverse pregnancy outcome; dc: diffuse cutaneous; F: female; GW: gestational weeks; ILD: interstitial lung disease; lc: limited cutaneous; M: male; SSc: systemic sclerosis; y: years old; *NP test interpretation*= 0: absent, 1: present, A: abnormal, B: borderline, N: normal. *ASD diagnosis, •born before SSc onset §twins, °gestational diabetes, ^preeclampsia + IUGR

Conclusions

Children born to SSc mothers seems to demonstrate a certain degree of impairment in social functioning area, despite normal intellectual and adaptive skills. According to the NP interpretation of our findings, these children try to cope with the maternal chronic disease by hiding their discomfort and failing to express their emotions with their parents.

Reference

(1) Nalli C.2020.

Passive maternal immunity in children of women with rheumatic disease compared to healthy controls – A case-control study

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Citation

Ramspeck, H.D., Mazzucato-Puchner, A., Horvath, M., Szlatinay, A., Rosta, K. Passive maternal immunity in children of women with rheumatic disease compared to healthy controls – A case-control study.

Background

Rheumatic disorders often affect women in their childbearing age and are associated with various preconceptional and obstetrics complications. Immunological adaptation during pregnancy affects the course of autoimmune diseases, infections and might alter immunological response

upon vaccinations. In the context of the SARS-CoV-2-pandemic, the question of vaccine efficacy in pregnant women suffering from rheumatic disease in comparison to healthy individuals became quintessential. In the present study we aimed to explore the acquired passive immunity of newborn of women suffering from rheumatic disease compared to healthy controls. As reference to the newly established mRNA vaccines against SARS-CoV-2, passively acquired immunity was determined against conventional vaccines such as varicella zoster virus and rubella.

Methods

We recruited 36 pregnant women in their third trimester of pregnancy between November 2021 and March 2022. The case group consisted of 11 pregnant women suffering from rheumatic disease and 25 healthy controls. Venous blood sampling was performed at the inclusion visit. Additionally, umbilical cord blood samples were collected postpartum. Antibody-titers were determined with Roche SARS-CoV-2 RBD ECLIA for SARS-CoV-2, and Kits by DiaSorin für VZV and Rubella in maternal and umbilical cord serum for both groups.

Results

Antibody-titers against SARS-CoV-2 did not differ statistically significant between case and control group for both, maternal and umbilical cord serum. This shows that the vaccine against SARS-CoV-2 is equally effective during pregnancy for women suffering from rheumatic disorders as in healthy controls. Also, this case-control study was able to show that children born to women with rheumatic disease have robust passive maternal immunity.

For Rubella, there was also no statistically significant difference for neither children nor women from either group. However, women suffering from rheumatic disease had significantly higher antibody-titers against VZV, which might be due to better preconceptional counseling and re-vaccination. This was also the case for the children, which is congruent with the detected higher maternal antibody titers.

Maternal and umbilical cord serum antibody titers correlated positively in case of all detected antibodies, which suggests that the titer in umbilical cord sera is dependent on maternal antibody-titers and not altered by the presence of the rheumatic disease.

Cluster analysis for the identification of clinical phenotypes among antiphospholipid antibodies associated adverse pregnancy outcomes patients

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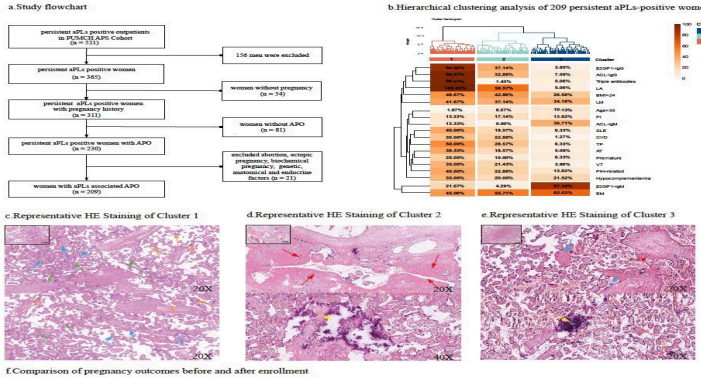
Citation

Long, Y., Zhao, J., Li, M., Tian, X., Zeng, X. Cluster analysis for the identification of clinical phenotypes among antiphospholipid antibodies associated adverse pregnancy outcomes patients.

Purpose
Antiphospholipid antibodies (aPLs) are the leading causes of adverse pregnancy outcomes (APO). Women with persistently aPLs positive present heterogeneous clinical manifestations and APO. We applied cluster analysis to identify specific phenotypes among these patients to manage risk stratification during pregnancy and improve prognosis.

Methods
This was a prospective study of persistent aPLs-positive women cohort to PUMCH between July 2009 and February 2022. Demographic characteristics, clinical manifestation, previous pregnancy history and antibodies profiles were recorded. Placentae from patients were collected and performed the routine histopathologic diagnoses. Hierarchical cluster analysis and Chi-square test were performed.

Results
A total of 209 patients with 477 pregnancies were enrolled in this study. Beta2-GPI was the most frequently found in persistent aPLs-positive women. The live birth rate improved from 17.29% before enrollment to 75.64% dramatically. Three clusters among 209 patients were identified. Cluster 1 (60 patients, 28.71%) consisted mainly of women with systemic lupus erythematosus and major presented aPLs IgG subtype. Women in this group had the highest incidence of pregnancy induced hypertension and late miscarriage events. Cluster 2 (70 patients, 33.49%) presented IgG subtypes with the highest percentage of placenta insufficiency. Cluster 3 (79 patients, 37.80%) showed the highest prevalence of IgM subtype of aPLs (87.34%,36.71%, respectively). Women in this cluster suffered highest frequency of early miscarriage (62.03%). After standard treatment, the live birth rate of cluster 1 patients was only 69.2%, much lower than the other two clusters. The placenta in Cluster 1 displayed the most severe impairment, while the Cluster 3 showed comparatively milder damage.



f.Comparison of pregnancy outcomes before and after enrollment

	Total pregnancy outcome	Pre-entry pregnancy outcomes	New-onset pregnancy outcomes	P
Total	477	399	78	
Live birth	128 (26.83%)	69 (17.29%)	59 (75.64%)	**<0.0001**
Fetal Death	349 (73.17%)	330 (82.71%)	19 (24.36%)	**<0.0001**
Early miscarriage	184 (38.57%)	170 (42.61%)	14 (17.95%)	**<0.0001**
Late miscarriage	131 (27.46%)	129 (32.33%)	2 (2.56%)	**<0.0001**
Preterm birth	42 (8.81%)	28 (7.01%)	14 (17.95%)	**0.002**
Severe/mild preterm birth 32w≤-<37w	25 (5.24%)	15 (3.76%)	10 (12.82%)	**0.03**
Early preterm birth28w≤-< 32w	13 (2.73%)	10 (2.51%)	3 (3.85%)	0.455
Extremely preterm birth <28w	4 (0.84%)	3 (0.75%)	1 (1.28%)	0.512
SB	7 (1.47%)	7 (1.75%)	0	0.605
PA	7 (1.47%)	6 (1.50%)	1 (1.28%)	1
PROM	13 (2.73%)	5 (1.25%)	8 (10.25%)	**<0.0001**
Oligoamnios	13 (2.73%)	7 (1.75%)	6 (7.69%)	**0.01**
FGR	10 (2.10%)	7 (1.75%)	3 (3.85%)	0.214
PIH total	62 (13.00%)	58 (14.54%)	4 (5.13%)	**0.024**
Only PIH	35 (7.34%)	34 (8.52%)	1 (1.28%)	**0.025**
PE/Eclampsia	27 (5.66%)	24 (6.02%)	3 (3.85%)	0.597
HELLP	5 (1.05%)	4 (1.00%)	1 (1.28%)	0.592
HELLP < 34w	4 (0.84%)	3 (0.75%)	1 (1.28%)	0.512
HELLP > 34w	1 (0.21%)	1 (0.25%)	0	1

FIGURE 1

Study flowchart, hierarchical clustering analysis of209 persistent aPLs-positive women and representative HE staining of three clusters.
(a) Study flowchart; **(b)** Women v.~th persistent aPLs-positive (n = 209) were divided into three clusters based on the demographic data, clinical characteristic, laboratory values and pregnancy outcomes;
(c) Representative HE staining of Cluster I: G32 weeks, a reduction in the number of capillaries within the placental villi (green arrow), incomplete development of villi capillaries, significant deposits of fibrin within the intervillous space (blue arrow), and an elevated presence of syncytial cell nodules (orange arrow);
(d) Representative HE staining of Cluster 2: G38 weeks, the number of stem chorionic capillaries was reduced, the endothelium of stem chorionic vessels was slightly swollen and degenerated, there were large foci of infarction (red arrow), sever calcification (yellow arrow) in the placenta,
and mild vacuolar deformation of the endothelial cells of the stem chorionic vessels;
(e) Representative HE staining of Cluster 3: G39 weeks, the number of stem chorionic capillaries was decreased, the nodules of chorionic syncytial trophoblasts were slightly increased (green arrow), there were fibrin deposits in the interstitial space of the chorion (blue arrow), slight foci of infarction (red arrow)
and multifocal calcification (yellow arrow) was seen, and the endothelial cells of the stem chorionic vessels of the placenta were mildly vacuolated and deformed;
(f) Comparison of pregnancy outcomes before and after enrolhnent
LA: lupus anticoagulant, BMI: body mass index, LM: late miscarriage; PI: placenta insufficiency; SLE: systemic lupus erythernatosus; CVD: Cardiovascular disease risk factors; TP: thrombocytopenia; AT: arterial thrombosis, VT: venous thrombosis; PIH: pregnancy induced hypertension; EM: early miscarriage; HE: hernatoxylin-eosin; G: gestational.

Conclusion

Our study identified three clinical subtypes of aPLs-positive women with APO. Cluster 1 contains patients with a predisposition to SLE. Patients in cluster 2 majorly present PI combined with aPLs-IgG subtype, while cluster 3 present EM with aPLs-IgM subtype. The individualized risk stratification assessment of these patients will help to develop different treatment strategies and improve the pregnancy outcomes.

Pregnancy outcome predictors in systemic lupus erythematosus: A systematic review and meta-analysis

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Citation

Wind, M., Fierro, J., Bloemenkamp, K., de Leeuw, K., Lely, T., Limper, M., Sueters, M., Teng, O., Walter, I., Kooiman, J., Pregnancy outcome predictors in systemic lupus erythematosus: A systematic review and meta-analysis.

Purpose

Pregnant women with systemic lupus erythematosus (SLE) are at increased risk of disease flares and adverse pregnancy outcomes (APOs). In order to identify and provide an unambiguous effect size of pregnancy outcome predictors in women with SLE, we performed a systematic review and meta-analysis.

Methods

PubMed and Embase were searched (3rd of August 2022) for observational studies reporting preconceptionally available risk factors on pregnancy outcomes in at least 20 SLE patients without a start date restriction. Two reviewers independently performed the study selection, data extraction, and risk of bias assessment in a blinded standardized manner. Pooled univariate odds ratios (OR) were computed using a random effects model and heterogeneity was assessed by I^2%. Risk of bias was assessed using the quality in prognostic studies (QUIPS) tool.

Results (Figure 1)

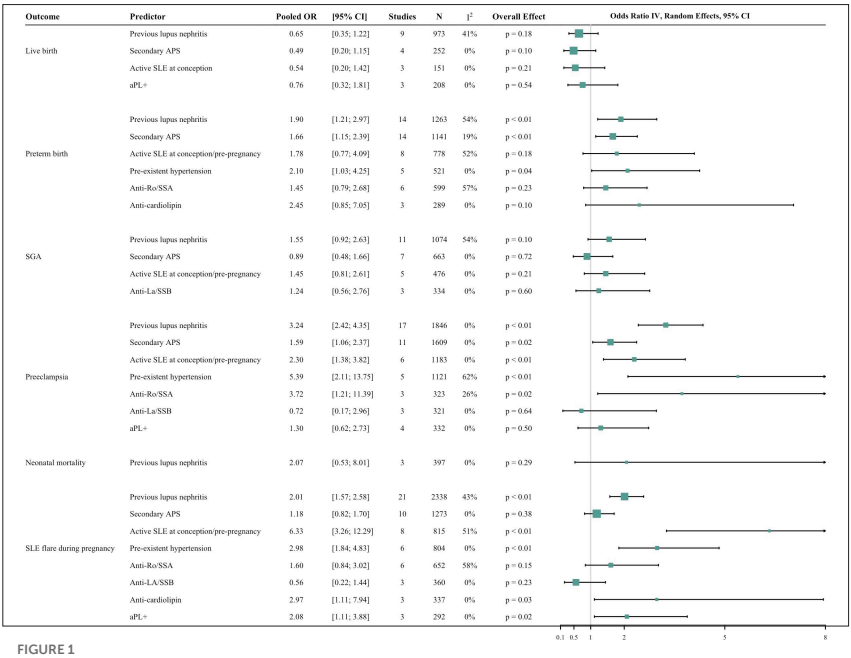


FIGURE 1

Preliminary Results

the search identified 4394 unique records, of which 70 were included in the meta-analysis. Previous lupus nephritis was associated with an increased risk of disease flare during pregnancy (OR 2.01 [95% confidence interval (CI) 1.57-2.58], I^2=43%), increased risk of preterm birth (OR 1.90 [1.21-2.97], I^2=54%), and an increased risk of pre-eclampsia (OR 3.24 [2.42-4.35], I^2=0%). Women with pre-existing hypertension also had an increased risk of disease flare (OR 2.98 [1.84-4.83], I^2=0%), preterm birth (OR 2.10 [1.03-4.25], I^2=0%) and pre-eclampsia (OR 5.39 [2.11-13.75], I^2=62%). SLE activity pre-pregnancy was associated with flares in pregnancy (OR 6.33 [3.26-12.29], I^2=51%) and pre-eclampsia (OR 2.30 [1.38-3.82], I^2=0%). Secondary antiphospholipid syndrome (APS) was associated with preterm birth (OR 1.66 [1.15-2.39], I^2=19%) and pre-eclampsia (OR 1.59 [1.06-2.37], I^2=0%). Risk of bias assessment suggested considerable bias on the domains of study participation and statistical methods in most studies.

Conclusions

The results of this meta-analysis consolidated a history of lupus nephritis, pre-existing hypertension, pre-pregnancy disease activity, and secondary APS as the most important predictors of APOs in women with SLE. These findings contribute to an optimal individual risk assessment per patient in preconception counselling.

Complement levels during the first trimester of gestation predict disease flare and adverse pregnancy outcomes in systemic lupus erythematosus: A network meta-analysis on 532 patients

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Citation
Radin, M., Cecchi, I., Crisafulli, F., Klumb, E.M., de Jesùs, G.R., Lacerda, M.I., Saavedra, M.A., Reyes-Navarro, G.V., Iaccarino, L., Larosa, M., Moroni, G., Tamborini, F., Roccatello, D., Andreoli, L., Sciascia, S., Chighizola, C. Complement levels during the first trimester of gestation predict disease flare and adverse pregnancy outcomes in systemic lupus erythematosus: A network meta-analysis on 532 patients.

Background
Complement levels have been proposed as candidate biomarkers of disease activity and obstetric risk in lupus pregnancies, but their reliability has been questioned due to the physiologic fluctuations of complement levels during gestation. Thus, this study aimed at assessing the clinical significance of complement fluctuations in lupus pregnant women.

Methods
Corresponding authors of 19 studies meeting inclusion criteria were invited to contribute with additional data including C3 and C4 levels [before pregnancy, at conception, in every trimester (T) and 3 months after delivery]; data were pooled together in a network meta-analysis.

Results
A total of 532 lupus women from four studies were included in the analysis. In SLE women, C3 and C4 increased progressively during gestation: levels remained stable during T1 and peaked in T2 to decrease in T3. Patients with previous lupus nephritis (LN) and those who experienced flares during pregnancy had significantly lower mean levels of C3 and C4 at all timepoints. The lowest levels of complement were observed, particularly during T1,

in patients with LN and gestational flare. Both reduction and the lack of increase of C3 and C4 levels at T1 versus conception were associated with gestational flares, particularly in LN patients. Pregnancies with flare had a statistically significant higher rate of maternal and fetal complications (60%vs.50.3%;p=0.03).

The changes of complement levels in the different patients populations are illustrated in the Figure 1, below.

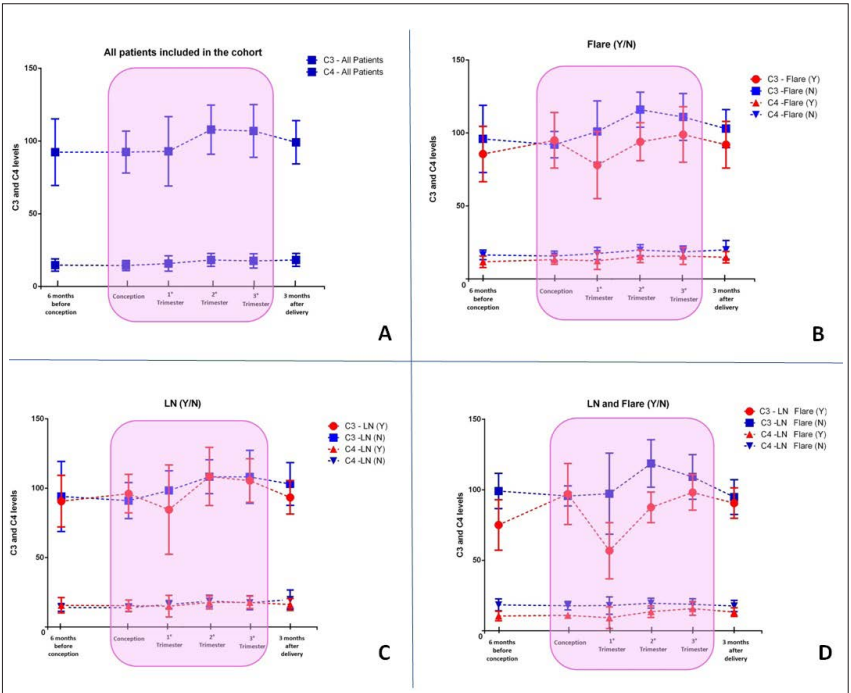


FIGURE 1

Conclusions

Low complement levels, particularly in T1, were associated with a higher frequency of gestational flare. Either reduction or smaller increase of C3 and/or C4 levels, even within normal range, might predict flares especially in early gestation.

Maternal and perinatal outcomes in women with vasculitis - A 13-year experience from a portuguese tertiary centre

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Citation
Lopes, A.R.R., Chícharo, A.T., Cruz-Machado, A.R., Barreira, S., Martins, P., Araújo, C., Centeno, M., Ponte, C., Pinto, L., Capela, S. Maternal and perinatal outcomes in women with vasculitis - A 13-year experience from a portuguese tertiary centre.

Purpose

Describe maternal and perinatal outcomes in women with vasculitis.

Methods

Observational retrospective study including pregnant women with vasculitis followed at a rheumatology-obstetric clinic from 01/2009 to 10/2022.

Results

We identified 31 pregnancies in 24 women. Table 1 summarizes demographic and clinical data. The most frequent diagnosis were Behçet's disease (BD) (18; 58%), polyarteritis nodosa (PAN) (4; 13%) and Takayasu arteritis (TAK) (4; 13%). The mean ± SD age at conception was 33 ± 6 years with a median disease duration of 6 (IQ range 3-12); 29 (94%) were in remission by the time of conception. We documented 30 live births, 1 early miscarriage (BD) and no perinatal mortality or birth defect occured. The mean ± SD gestational age at delivery was 38.2 ± 2.1 weeks. Five (17%) viable pregnancies resulted in preterm births - 3 BD, 1 TAK and 1 relapsing polychondritis (RP). Fetal growth

TABLE 1

MAIN DIAGNOSIS	N (%)	GESTATIONAL AGE AT DELIVERY (MEAN ± SD WEEKS)	BIRTHWEIGHT (MEAN ± SD GRAMS)	SGA N (%)	MISCARRIAGES N (%)	FETAL GROWTH RESTRICTION N (%)	PRETERM BIRTHS N (%)	PREGNANCY FLARES N (%)	POST-PARTUM FLARES N (%)
Behçet's disease	18 (58)	38.3 ± 1.5	3013± 494	4/14 (29)	1/18 (6)	0	3/17 (18)	4/17 (24)	4/14 (29)
Polyarteritis nodosa	4 (13)	37.4 ± 0.6	2783± 175	1/4 (25)	0	0	0	2/4 (50)	0
Takayasu arteritis	4 (13)	38.0 ± 2.1	2725± 364	1/4 (25)	0	1/4 (25)	1/4 (25)	1/4 (25)	1/4 (25)
IgA vasculitis	1 (3)	40.3	3435	0	0	0	0	0	0
ANCA-PR3 cutaneous vasculitis	1 (3)	40.9	2845	1	0	0	0	1	0
Relapsing polychondritis	1 (3)	36.0	2040	1	0	1	1	1	1
Cryoglobulinemic vasculitis	1 (3)	35.9	3020	0	0	0	0	0	0
Cryoglobulinemic vasculitis associated with Sjögren's syndrome	1 (3)	39.0	3000	0	0	0	0	0	0
	31 (100)	**38.2 ± 2.1**	**2925± 566**	**8/27 (30)**	**1/31 (3)**	**2/31 (6)**	**5/30 (17)**	**9/25 (36)**	**6/27 (22)**

restriction was detected in 2 (6%) pregnancies (TAK and RP). Eight (30%) newborns were small for gestational age (SGA), four from mothers with BD (29%). Cesarean section was performed in 8 (26%) patients – 2 (TAK) due to vasculitis activity. Nine (36%) patients relapsed during pregnancy (4 BD; 2 PAN; 1 TAK; 1 RP; 1 ANCA-PR3 cutaneous vasculitis) while 6 (22%) relapsed during the post-partum period (4 BD; 1 TAK and 1 RP). A total of 24 (77%) patients were treated with glucocorticoids (GC), most of them (63%) at low doses (equivalent of 5mg/day of prednisolone or less). Seven (23%) patients were treated with conventional DMARDs: 2 TAK and 3 BD with azathioprine and 2 PAN with azathioprine and hydroxychloroquine. Biological DMARDs were prescribed in 2 (6%) patients with TAK. The occurrence of flares during pregnancy increased the risk for adverse pregnancy outcomes (APO) (OR 13, 95 CI 2-80; p=0.007). No association was found concerning maternal age or use of DMARDs/GC and the risk of APO (p>0.05).

Conclusion

Most pregnant women with vasculitis managed at our unit had successful gestations. However, they may still be at risk for developing APO, namely if they experience disease flares during pregancy. SGA was the main APO recorded.

Behçet`s disease and course of pregnancy - Results from the nationwide pregnancy register revnatus

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Citation

Koksvik, H., Jakobsen, B., Bjorngaard, H., Skorpen, C., Wallenius, M. Behçet`s disease and course of pregnancy - Results from the nationwide pregnancy register revnatus.

Purpose

Behcets disease (BD) is a complex and multisystemic disorder of unknown etiology. It is characterized by recurrent oral and genital ulcers and inflammatory eye involvement. It can also affect the cardiovascular, pulmonary and skeletal system. BD is commonly diagnosed in women in reproductive age. Pregnancy outcomes are reported in previous studies with discrepancies in the rate of pregnancy-related complications.

The objective of this study is to describe the course of pregnancy in patients with BD.

Methods

We prospectively collected data on pregnancy outcome in women with BD through the nationwide Norwegian registry on pregnancy and rheumatic diseases (RevNatus) from 2016-March 2023. All women were diagnosed with ICD-10 code M35.2. 20 pregnancies in 17 women were recorded. Two women had two pregnancies including one twin birth. Disease activity is categorized as: {debut}, {minor relapse}, {major relapse}, {persistent disease} or {remission}.

Results

Median age at conception was 30 years (range 21-35), with median disease duration 8 years (range 1-19). There were no serious organ manifestations. All pregnancies resulted in live births with median gestational age at delivery of 38 weeks (range 36-41). One patient was diagnosed with preeclampsia, but no HELLP was recorded. Mean birth weight was 3037 gram.

TABLE 1: Pregnancy outcome in 20 BD pregnancies

Patient #	Pregancy #	Maternal age at conception, years	Duration of disease , years	Medication at 2nd trimester	Oral or genital ulcers during pregnancy	Disease activity during pregnancy	CRP value at 2nd trimester	Gestational age at delivery, week	Mode of delivery	Birth weight, gram
A	1	29	9	Azathioprine Colchicine LMWH	no	persistent*	13	38	SVD	3475
A	2	30	10	Azathioprine Colchicine LMWH	yes	remission***	13	40	SVD	3660
B	3	32	4	Adalimumab Colchicine LDPrednisolone	yes	persistent *	4	40	SVD	3215
C	4	32	2	no	yes	persistent*	5	41	SVD	3355
D	5	30	10	Adalimumab LDPrednisolone	yes	persistent*	23	36	SVD	1940
E	6	27	12	Etanercept ASA	no		2	41	SVD	3410
	7a (twin)			Etanercept ASA		NA	5		Sectio	2400
	7b (twin)	30	15		no	NA		37		2410
F	8	25	4	LDPrednisolon	yes	flare**	15	38	SVD	3180
	9	28	7	Adalimumab LDPrednisolon	yes	flare**	4	37	Acute Sectio	3049
G	10	33	9	no	no	remission***	1	41	SVD	3150
H	11	31	3	LDPrednisolon	yes	persistent *	10	38	SVD	2480
I	12	30	1	ASA	no	persistent*	3	39	SVD	3410
J	13	32	NA	no	yes	persistent*	1	37	SVD	3115
K	14	32	8	Ciklosporine	no	remission***	3	37	SVD	3130
L	15	35	10	LDPrednisolon	no	remission***	6	40	SVD	3035
M	16	29	13	Azathioprine	no	remission***	2	40	SVD	3815
N	17	30	19	Azathioprine Colchicine	yes	NA	NA	40	SVD	3878
O	18	30	5	Adalimumab Colchicine ASA	yes	flare**	15	36	SVD	2605
P	19	25	7	LDPrednisolon	yes	persistent *	1	39	SVD	3190
Q	20	23	14	ASA	yes	flare**	19	38	Sectio	2500

SVD = spontaneous vaginal delivery, ASA = acetylsalicylic acid, LDPrednisolon = Low dose Prednisolon <10 mg/day,*= persistent througout pregnancy, **= flare once during pregancy, ***= remission throughout pregancy

Conclusions

Pregnancies in women with BD in this cohort were uncomplicated. We did not reveal any serious events, and they all resulted in live births. However, BD is a very heterogeneous disease, and the women in our cohort did not have any serious organ manifestations. Larger cohorts representing the heterogeneity are needed to study the course and outcome of pregnancies in BD.

Efficacy and safety of monoclonal antibodies targeting type 2 inflammation in pregnant patients with Eosinophilic Granulomatosis with Polyangiitis (EGPA)

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Citation
Davanzo, F., Padoan, R., Iorio, L., Codirenzi, M., Campaniello, D., Doria, A. Efficacy and safety of monoclonal antibodies targeting type 2 inflammation in pregnant patients with Eosinophilic Granulomatosis with Polyangiitis (EGPA).

Background
Eosinophilic granulomatosis with polyangiitis (EGPA) is a potentially life-threatening disease that affects women of childbearing age. With the widespread availability of monoclonal antibodies targeting type 2 inflammation in EGPA, safety during pregnancy has become a crucial issue.

Methods
Starting from our case, we conducted a comprehensive literature review using PubMed and the following mesh terms: "eosinophilic granulomatosis with polyangiitis", "Churg-Strauss syndrome", "severe asthma", "Benralizumab", "Mepolizumab", "Dupilumab", "pregnancy", "post-partum",

"breastfeeding". We focused on treatment management, maternal and fetal outcomes.

Results

A 35-years old ANCA-negative EGPA patient was treated with benralizumab for three years, achieving early withdrawal of oral glucocorticoids and a good asthma control. She experienced a miscarriage at 7th week while on benralizumab but then became pregnant again. Benralizumab was administered until the end of the second trimester and discontinued during breastfeeding. Pregnancy was complicated by gestational diabetes requiring insulin and a cesarean delivery at 40 weeks. We did not observe vasculitis relapse, asthma exacerbation, increase in eosinophils and the infant was healthy. During post-partum period, she was treated with a short course of oral glucocorticoids, due to an asthma exacerbation and a transient increase in eosinophils (2300/mmc) and C-reactive protein (17mg/L).

We found no reports concerning anti-type 2 antibodies usage during pregnancy in EGPA patients. Two cases of benralizumab use were reported, one in asthma and other in hypereosinophilic syndrome, whereas three cases of mepolizumab use were found in chronic asthma and one in an EGPA patient treated only after delivery. Maternal outcomes were overall good, but one pregnancy ended for voluntary abortion due to insufficient information on the safety of mepolizumab. Two patients received the biologics also during the third trimester. No infants were breastfed while the mother was on monoclonal antibodies, except for one case (Table 1). Concerning dupilumab, there were twelve case reports in atopic dermatitis and pemphigoid patients, reporting good maternal and fetal outcomes [1].

Conclusions

This case supports the evidence of favorable outcome on the use of eosinophil-depleting therapies during pregnancy. Although no safety signals were identified, more data are needed to establish risks and benefits of such treatments during pregnancy and breastfeeding.

TABLE 1: Characteristics of published case reports

Pt *n*, Age (*y*)	Age at onset (*y*)	Disease	Drug	Previous pregnancies	Involvement	Previous systemic treatment	Timing of exposure	Patient outcome	Fetal outcome	Author
1 (25)	20	Chronic asthma	Mepolizumab	0	Asthma and rhinitis	Mepolizumab	Until 5th gw (first trimester)	Good response, relapse during post-partum	Healthy infant	Odzen et al [2]
2 (36)	30	Chronic asthma	Mepolizumab	3	Asthma	Mepolizumab	Stop mepolizumab due to unknown possible effects on the fetus	-	Voluntary abortion	Odzen et al [2]
3 (26)	16	Chronic asthma	Mepolizumab	0	Chronic asthma, nasal polyposis	Mepolizumab until the research of pregnancy	Throughout pregnancy and breastfeeding (one week)	Good response, but two exacerbations requiring short term oral glucocorticoids	Caesarean delivery at 40th gw of healthy infant (weight 2750 g, APGAR score 9)	Vittorakis et al [3]
4 (27)	27	ANCA negative – EGPA	Mepolizumab	-	Allergic rhinitis, necrosis of digits exacerbated during pregnancy	High dose oral glucocorticoids	After delivery	-	Caesarean delivery at 28th gw of healthy infant (weight 1000 g)	Kasuya et al [4]
5 (31)	-	Chronic asthma	Benralizumab	-	Asthma, multifocal pulmonary infiltrates, eosinophilic pericarditis	High dose glucocorticoids + benralizumab, until becoming pregnant	Third trimester (for asthma exacerbation); not know if on breastfeeding	Good response: improving on peripheral edema, eosinophilia, asthma	Healthy infant	Saco et al [5]
6 (36)	22	PDGFRA - Negative HES	Benralizumab	-	Gastrointestinal, constitutional, sinus	Interferon, cromolyn, sirolimus	Throughout pregnancy, no breastfeeding	Good response	Cesarean delivery at 38th gw of healthy infant without eosinophils (3091 g weight, normal APGAR score)	Manetz et al [6]
7 (34)	31	ANCA negative – EGPA	Benralizumab	1	Asthma, rhinitis, sinusitis, polyposis, pulmonary infiltration	Methotrexate, Mepolizumab	First trimester; no during breastfeeding	Good response, but gestational diabetes and exacerbation during post-partum	1 miscarriage at 7th gw; 1 caesarian delivery at 40th gw of healthy infant	Present case

Gw: gestational week; ANCA: antineutrophil cytoplasmic antibodies; EGPA: eosinophilic granulomatosis with polyangiitis; PDGFRA: platelet derived growth factor receptor alpha; HES: hypereosinophilic syndrome.

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Posters
PO1:01 | A study exploring women's experience of living with pregnancy and lactation associated osteoporosis in the UK

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Citation
Gak, N., Abbara, A., Bubbear, J., Comninos, A., Keen, R. A study exploring women's experience of living with pregnancy and lactation associated osteoporosis in the UK.

Purpose

Pregnancy and lactation associated osteoporosis (PLO) is a rare form of osteoporosis characterised by a decline in bone mineral density leading to fragility fractures during the last trimester of pregnancy or postpartum

while breastfeeding. The aim of this study was to ascertain the impact of PLO on physical, emotional, and social wellbeing of women affected by PLO.

Methods

The study involved 15 women with age range 32-60 years (mean 40 years), who attended specialist tertiary clinics in the UK. They participated in semi-structured interviews, which were video recorded and transcribed verbatim. The duration between diagnosis and interviews ranged from 1 to 32 years, with a median of 3 years. Qualitative data from the interviews was analysed using emergent coding and thematic analysis.

Results

The study identified several main themes, including: 1) lack of awareness about PLO among primary and secondary healthcare providers, leading to delays in diagnosis, misdiagnosis, and wrong management; 2) lack of physiotherapy and psychological support specific to PLO needs; 3) acute and chronic back pain, that affects mobility, self-care and care for newborn, making women reliant on others for support (partners, parents, babysitters, friends); 4) feelings of grief related to loss of motherhood and self-identity; 5) anxiety about the possibility of further fractures and future pregnancies; and 6) difficulty engaging in social activities important for well-being due to mobility issues, loss of self-confidence, and emotional distress associated with the diagnosis of PLO.

Conclusion

This is the first study to reveal the physical and psychological effects of PLO in women in the UK. Improving awareness, diagnosing the condition quickly, and providing prompt treatment could reduce some of the negative physical and psychological effects of the disease. The study identifies several themes that suggest a multidisciplinary approach involving healthcare professionals such as obstetricians, midwives, metabolic bone specialists, spinal surgeons, pain specialists, physiotherapists, and psychologists could better meet the needs of women affected by PLO.

PO1:02 | A case report of persistent pyrexia in the puerperium

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Citation
Moore, G.N., Etomi, O., Veerareddy, S., Watson, H.A. A case report of persistent pyrexia in the puerperium

Purpose

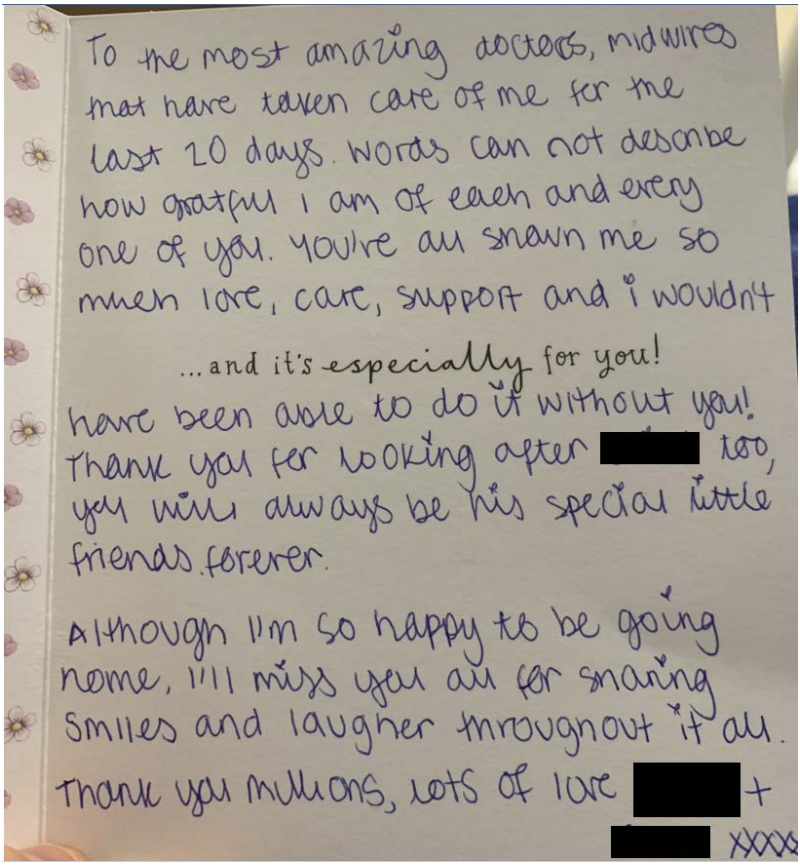
This case report aims to explore the management of post-partum pyrexia in patients with rheumatological disease. Sepsis remains a leading cause of maternal mortality, and its prompt recognition, management and escalation are fundamental to safer maternity care. However, atypical and prolonged pyrexia, which does not respond to appropriate anti-microbial therapy, ought to prompt multi-disciplinary consideration of alternative aetiologies.

Methods

We report the case of a 31 year old woman being managed on the post-natal ward of a district general hospital in a deprived South London borough in 2022.

Results

This patient's Systemic Lupus Erythematosus and Sjogren's Disease had been stable and unmedicated for several years until an episode of vasculitic rash


To the most amazing doctors, midwives that have taken care of me for the last 20 days. Words can not describe how grateful I am of each and every one of you. Youve all shown me so much love, care, support and I wouldn't ...and it's especially for you! have been able to do it without you! Thank you for looking after [redacted] too, you will always be his special little friends forever.

Although I'm so happy to be going home, I'll miss you all for sharing smiles and laugher throughout it all.

Thank you millions, lots of love [redacted] + [redacted] xxxx

FIGURE 1

in Early Pregnanany, prompting recommencement of hydroxychloroquine. Serial fetal growth scans detected oligohydramnios, for which labour was induced at 38 week's gestation. Labour culminated in caesarean section for obstructed labour, fetal distress and chorioamnionitis. Despite multiple

courses of intravenous antibiotics, guided by culture and sensitivities, she remained fatigued and febrile for 18 days post-natally. Intra-abdominal imaging revealed a small haematoma which was felt unlikely to be a source of sepsis. Following multi-disciplinary input and consultation with obstetric physicians via the obstetric medicine network, differential diagnoses were expanded to antibiotic-induced pyrexia, infective endocarditis, haemophagocytic lymphohistiocytosis syndrome and lupus flare. Laboratory investigation results included; ferritin: 4,441 ug/L, complement C3: 0.76 g/L and C4: <0.02 g/L for C3 and C4 respectively. Antibiotics were stopped and prednisolone commenced for a presumed lupus flare. Following symptomatic and biochemical improvement she was discharged home and followed up as an outpatient.

Conclusion

The majority of maternal deaths are from indirect causes and occur in the postnatal period. This case of a postpartum, post-operative fever demonstrates the complexities of managing women with rheumatological conditions in the puerperium. In the presence of a peristent fever, despite adequate treatment, we need to remain open-minded to alternative diagnoses. This patient's journey emphasises the critical importance of a good clinical assessment and obstetric medicine networks, beyond specialist antenatal clinics, and on to the front line of obstetric care.

PO1:03 | Infant feeding practices in women with systemic rheumatic diseases

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Citation
Lieber, S.B., Masto, L., Smole, A., Siegel, C.H., Levine, J.M., Stamm, B., Mandl, L.A., Lockshin, M., Barbhaiya, M., Sammaritano, L.R. Infant feeding practices in women with systemic rheumatic diseases.

Purpose

Although guidelines state that breastfeeding (BF)/pumping in women with systemic rheumatic diseases (SRDs) on BF-compatible medication

is acceptable, little is known about real-world infant feeding practices, including decision-making related to BF/pumping versus formula feeding (FF). We aimed to describe infant feeding practices and expectations and satisfaction related to infant feeding among women with SRDs at first delivery.

Methods

Women 18-65 years of age seen by a Hospital for Special Surgery rheumatologist >/=2 times from 2020-2022 were enrolled in the Rheumatology Women's Reproductive Health and Wellness Cohort. This study included women aged 18-45 years with self-reported SRDs who responded to baseline questions on maternal characteristics, infant feeding practices, and expectations and satisfaction related to infant feeding; participants were asked to recall their first delivery. In this interim analysis, we evaluated infant feeding types and used descriptive statistics to compare differences in maternal and pregnancy/infant characteristics, stratified by infant feeding type (BF/pumping versus exclusive FF). Enrollment is ongoing.

Results

Of 670 participants enrolled in the cohort, 64 self-reporting a SRD diagnosis at the time of first delivery were included in this analysis; 42 (65.6%) endorsed BF/pumping (not necessarily exclusive of FF) while 22 (34.4%) reported exclusive FF (Table 1). No differences in age at delivery, race, SRDs, or postpartum medications were observed in the BF/pumping versus FF groups. Most common SRDs included rheumatoid arthritis and systemic lupus erythematosus, and hydroxychloroquine was the most commonly reported medication. Although exclusive FF participants had a higher frequency of Cesarean section (54.5% versus 31.0%), this was not significant (p=0.07). Infant feeding practices aligned with maternal expectations in 71.4% and 40.9% of BF/pumping and FF participants, respectively (Table 2). While most participants expressed satisfaction with infant feeding, 21.4% and 27.3% of BF/pumping and exclusive FF participants, respectively, expressed dissatisfaction.

TABLE 1: Maternal and pregnancy/infant characteristics among women with systemic rheumatic diseases

Variable N (%) or mean (SD)	Participants who breastfed/pumped* (N=42)	Participants who exclusively formula fed (N=22)	p-value
Maternal characteristics			
Current age (years)	43.6 (9.7)	48.4 (8.9)	0.05
Age at delivery (years)	30.8 (4.5)	31.4 (4.4)	0.58
Race**			0.10
White	33 (78.6)	20 (90.9)	
Other†	12 (28.6)	2 (9.1)	
Systemic rheumatic condition***			0.70
Rheumatoid arthritis	14 (33.3)	6 (27.3)	
Systemic lupus erythematosus	10 (23.8)	8 (36.4)	
Other inflammatory arthritis	10 (23.8)	5 (22.7)	
Other‡	18 (42.9)	14 (63.6)	
Postpartum medications			
Breastfeeding-compatible medications			0.35
Systemic steroids	5 (11.9)	7 (31.8)	
Hydroxychloroquine	15 (35.7)	8 (36.4)	
Other	14 (33.3)	14 (63.6)	
Breastfeeding-incompatible medications			0.16
Methotrexate	0	1 (4.5)	
None	20 (47.6)	6 (27.3)	0.12
Pregnancy/infant characteristics			
Mode of delivery			0.07
Vaginal	29 (69.0)	10 (45.5)	
Cesarean section	13 (31.0)	12 (54.5)	
Gestational age at delivery			0.67
<36 weeks	4 (9.5)	3 (13.6)	
36-38 weeks	16 (38.1)	10 (45.5)	
>38 weeks	22 (52.4)	9 (40.9)	
Neonatal ICU stay	7 (16.7)	5 (22.7)	0.56

*May include formula supplementation.
**Not mutually exclusive. Unable to report ethnicity due to small numbers.
***Not mutually exclusive.
†Unable to report detailed breakdown due to small numbers; includes American Indian or Alaska Native, Asian, Black or African American, and other participants.
‡Includes participants with adult-onset Still's disease, antiphospholipid syndrome, ocular inflammation, Sjogren's syndrome, systemic sclerosis, undifferentiated connective tissue disease, vasculitis, and unknown diagnosis.

TABLE 2: Infant feeding characteristics among women with systemic rheumatic diseases

Domain	Participants who breastfed/pumped (N=42)	Participants who exclusively formula fed (N=22)
*Infant feeding duration**		
<6 months	21 (50.0)	2 (9.1)
6-12 months	18 (42.9)	16 (72.7)
≥13 months	12 (28.6)	3 (13.6)
Missing	0	1 (4.5)
Alignment of infant feeding with expectations		
• I planned to breastfeed, and I did for as long as I wanted	24 (57.1)	0
• I planned to breastfeed, and I did, but for a shorter period than I wanted	15 (35.7)	1 (4.5)
• I planned to breastfeed, but didn't and fed with formula	0	8 (36.4)
• I planned to feed or supplement with formula, and this is what I did	6 (14.3)	9 (40.9)
• I planned to feed or supplement with formula, but I ended up breastfeeding	1 (2.4)	0
• Other	2 (4.8)	3 (13.6)
Satisfaction with infant feeding experience		
Very/somewhat satisfied	30 (71.4)	15 (68.2)
Neither satisfied no dissatisfied	3 (7.1)	1 (4.5)
Very/somewhat dissatisfied	9 (21.4)	6 (27.3)

*Not mutually exclusive.

Conclusions

Nearly two-thirds of participants in a sample of women with SRDs from our center breastfed/pumped. While satisfaction was high among both BF and exclusive FF participants, a substantial number were dissatisfied with their experience. Our findings suggest potential for improvement in the infant feeding experiences of women with SRDs, including through shared decision making with rheumatologists.

PO1:04 | Perinatal losses: Does a rheumatic disease can affect the grieving process?

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Citation
Trujillo, M.E.C., Taylor, C.M.S., Barbosa, L.P., Chapa, A.C., Torres, J.R., González, R.A.C., Solorio, V.C., Guerra, E.V.O., Guzmán, K.L.A., Vazquez, V.R.M., Sandoval, H.G.M., Serna, K.M.L., Aldaco, A.L.G., Angulo, J.E.D., Delgado, D.A. G. Perinatal losses: Does a rheumatic disease can affect the grieving process?

Objectives

Having autoimmune rheumatic diseases (ARDs) and perinatal losses (PL) have been considered traumatic events. Women with ARDs have greater risk of PL that lead to the process of grieving. Perinatal Grief (GF) symptoms affect women around the world; the capacity to overcome them it's called resilience. The aim of this study is to identify the frequency of complicated grief in women with ARDs and their resilience capacity.

Methods

Descriptive, cross-sectional study at the Hospital Universitario "Dr. José Eleuterio González" in México. Women with and without ARDs (>18 yrs.) were invited to fill a virtual survey with demographic, PL data, the Perinatal Grief Scale (PGS score: >50 suggests a complicated grief comorbidity) and the Resilience Scale (RS score from 5 to 175: the greater the score, the greater the resilience capacity).

The Kolmogorov-Smirnov test was used to determine normality. To analyze the differences between groups Mann–Whitney U test, Chi-square, T- test were employed. A $p < 0.05$ was considered statistically significant. The Spearman correlation coefficient was used to find the degree of relation between both scales ($p<0.05$). The statistical analysis was performed with the statistical program SPSS version 25.

Results

A total of 72 women were included: 36 with ARD and 36 without ARD. The median age for the group with ARD was 44.9 (41.4-48.5) and 36.9 (32.5-41.4) for the without ARD group. In the ARD group the most frequent diagnosis were rheumatoid arthritis (11/30.6%), systemic lupus erythematosus (9/25%) and antiphospholipid syndrome (6/16.7%).

TABLE 1: Clinical characterization

	Patients with ARD N=36	**Patients without ARD N=36**	**P=0.05**
Age, median (IQR)	44.94(41.38-48.51)	36.97(32.55-41.40)	
Years of education			
<9 years	7 (19.4%)	16 (44.5%)	
>9 years	29 (80.5%)	20 (55.5%)	
Marital Status			
Single	2 (5.6%)	5 (13.9%)	
Married/Common law	30 (83.3%)	20 (55.6%)	
Divorced	4 (11.1%)	9 (25%)	
Widow	-	2 (5.6%)	
Perinatal Losses			
1	19 (52.8%)	23 (63.9%)	
>1	17 (47.2%)	13 (36.1%)	
Living children			
Yes	31 (86.1%)	26 (72.2%)	
No	5 (13.9%)	10 (27.8%)	
Num. of pregnancies, median (IQR)	3 (3.00-4.00)	3 (2.00-4.00)	0.112
Num. of living children, median (IQR)	2 (1-2)	1.5 (0.0-2.75)	0.321
Resilience Scale score, mean (SD)	134.28 (SD =28.97)	129.39 (SD =26.43)	0.457
PGS score, median (IQR)	43(37.5-60.0)	46 (39.5-62.5)	0.151
PGS active grief subscale	9.50 (8.00-14.75)	10 (8.25-15.00)	0.489
PGS depression subscale	11 (10.00-16.00)	13 (10.25-21.25)	0.075
PGS guilt subscale	11 (8.00-14.75)	12 (9.25-17.75)	0.341
PGS acceptance subscale	12 (9.00-12.00)	10 (8.00-12.00)	0.495

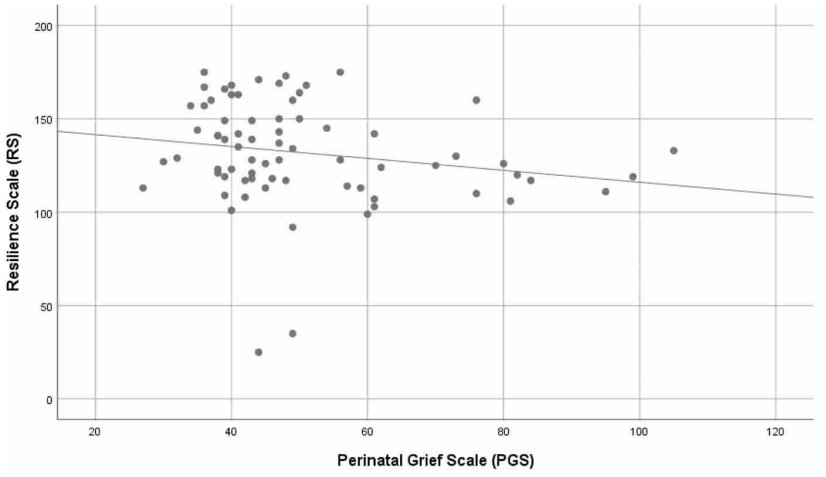


FIGURE 1
Correlation between the Perinatal Grief Scale and the Resilience Scale.

A weak negative correlation was found between the PGS and the RS ($p=0.027$, $r=-0.261$). No statistically differences were found in the scales and subscales scores between groups. The sociodemographic, PL data and the PGS and RS scores for both groups are included in Table 1.

Conclusion

Our results suggest that having an ARD doesn't impact the development of a complicated grief nevertheless can enhance the resilience capacity of women with PL. We'll increase the sample in order to determine protective factors for complicated grief and resilience capacity.

PO1:05 | Rates of high levels of post-partum depressive symptomatology in women with rheumatic diseases followed during pregnancy: A study by a multidisciplinary team

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Citation
Crisafulli, F., Pedretti, E., Beretta, E., Bani, C., Matthey, S., Vedova, A.M.D., Lucariello, S., Parzani, E., Zatti, S., Ramazzotto, F., Loardi, C., Andreolassi, I., Lini, D., Nalli, C., Gerardi, M.C., Lazzaroni, M.G., Semeraro, P., Fredi, M., Filippini, M., Taglietti, M., Franceschini, F., Andreoli, L., Tincani, A. Rates of high levels of post-partum depressive symptomatology in women with rheumatic diseases followed during pregnancy: A study by a multidisciplinary team.

Purpose

To assess the frequency of depressive symptoms during pregnancy and post-partum in women with inflammatory arthritis (IA) or connective tissue diseases (CTD).

Methods
Starting May 2018, patients prospectively followed during pregnancy by a multidisciplinary team in an Italian rheumatology unit were included. Disease activity, patient global health (PGH), physician global assessment (PhGA), EuroQoL were collected during pregnancy. Edinburgh Post-Natal Depression Scale (EPDS) questionnaire was administered at 30-60 days, 6 and 12 months after delivery. Patients with a screen positive EPDS score (>=9, or a positive response to question 10 -suicidal thought-) were referred to a clinical psychology specialist.

Since May 2022 a more detailed screening for the risk of anxious-depressive symptoms was offered during pregnancy and post-partum by a clinical psychologist, using Gad2, Whooley Question, MGMQ and EPDS tools.

Results
Up to June 2022, 129 patients completed at least one EPDS. Overall, 28 (22%) patients had at least one screen positive EPDS; a higher PhGA in the 1st trimester was observed in this group (VAS: 5[0-20] vs 0[0-0], p=0.03).

Twelve out of 50 patients with IA had at least one screen positive EPDS (24%). These patients had a shorter disease duration, a lower PGH in the 1st trimester, and a higher frequency of anxious/depressive symptoms at EuroQoL during pregnancy, compared to patients screening negative (Table1).

Sixteen out of 79 patients with CTDs had at least one screen positive EPDS (20%). This group presented a higher frequency of anxious/depressive symptoms (EuroQoL) in the 3rd trimester than patients screening negative (Table1).

Out of the 41 patients who were screened during pregnancy, 13 completed the post-partum assessment. Among these, 4 (31%) resulted positive at the psychological assessment 1-2 months post-partum. Notably, 3 of these patients (74%) presented positive questionnaires also during pregnancy (1 at 1st trimester, 2 at 3rd trimester, 1 during all pregnancy).

TABLE 1: Comparison between patients positive on the EPDS on at least one occasion or never positive among arthritis and CTDs groups. Continuous variables are expressed as median (IQR)

	IA EPDS positive N=12	IA EPDS negative N=38	CTDs EPDS positive N=16	CTDs EPDS negative N=63
Age	32 (27-34)	34 (29-35)	34 (31-39)	34 (31-37)
Disease duration, years	**3 (1-9)**	**7 (4-11)***	8 (2-10)	5 (2-10)
Caucasian	8 (67%)	31 (82%)	14 (88%)	53 (84%)
Education: University/master	5 (42%)	11 (29%)	5 (31%)	33 (52%)
Employed	10 (83%)	30 (79%)	14 (88%)	57/62 (92%)
First pregnancy	7 (58%)	20 (53%)	4 (25%)	18 (%29)
Anxiety/depression at EuroQol, n. positive: Baseline visit	**8 (67%)**	**4 (11%)***	4 (25%)	21 (33%)
1st trimester	**6/9 (67%)**	**4/31 (13%)***	4/14 (29%)	19/54 (35%)
2nd trimester	**5/11 (46%)**	**3/36 (8%)***	5/13 (38%)	11/52 (21%)
3rd trimester	4/12 (33%)	6/37 (16%)	**8 (50%)**	**10/58 (17%)***
PGH (VAS): Baseline visit	76 (50-90)	80 (70-91)	90 (70-90)	80 (70-93)
1st trimester	**70 (50-80)**	**81 (80-95)***	90 (68-90)	85 (73-95)
2nd trimester	70 (80-90)	86 (70-95)	80 (65-95)	89 (75-90)
3rd trimester	87 (76-90)	90 (71-100)	80 (69-80)	80 (70-90)
PhGA (VAS): Baseline visit	5 (0-50)	2 (0-20)	0 (0-11)	0 (0-10)
1st trimester	10 (0-45)	0 (0-20)	3 (0-13)	0 (0-5)
2nd trimester	0 (0-10)	0 (0-14)	0 (0-2)	0 (0-7)
3rd trimester	3 (0-28)	0 (0-3)	0 (0-8)	0 (0-7)
Breastfeeding	9 (75%)	28 (74%)	9 (56%)	45/62 (73%)

***Fisher exact test or chi-square test, p<0.05**

Legend: Inflammatory arthritis (IA): Rheumatoid Arthritis, Psoriatic Arthritis, Spondyloarthritis, Juvenil Idiopathic Arthritis; CTD: Undifferentiated Connective Tissue Disease, Systemic Lupus Erythematosus, Sjogren Syndrome, Systemic Sclerosis, Anti-Phospholipid Syndrome

Conclusion

More than 1 out of 5 women with RD had depressive symptomatology in the 12 months after delivery on the EPDS and showed anxious/depressive symptoms also during pregnancy. Specific psychological screening tools could be useful in the early identification and management of anxious/depressive symptoms during pregnancy.

PO1:06 | Reasons for breastfeeding avoidance: A multicenter insight in mothers with systemic lupus erythematosus

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Citation
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Despite the fact that the health advantages of breast milk are well known, few studies have examined breastfeeding in individuals with systemic lupus erythematosus, and the results have been conflicting. One-third of patients in a prior multicenter cohort studying 119 SLE pregnancies did not continue breastfeeding after giving birth. The aim of this paper was to study the causes of breastfeeding avoidance with the purpose to increase the standard of care of SLE women.

A priori questionnaire was created and administered to patients by structured-phone interview (Table 1). Results of pregnancies were gathered in retrospect. A total of 22 questionnaires of women who did not breastfeed after first birth were collected. Twelve out of 22 (54.5%) patients experienced a disease flare in the 24 months following the delivery. Healthcare professional advice (36.4%) was the most frequently reported reason for not breastfeeding, followed by the mothers' fear that medications (drugs) taken during pregnancy (22.7%) and/or the circulating autoantibodies (4.5%) could be passed onto the baby and therefore harm the new-born. In 10 (45%) cases, breastfeeding was not possible because of mother's or neonatal clinical complications. One woman did not breastfeed for a personal choice. After giving birth, only nine out of 22 patients (40.9%) stated to have had enough breastfeeding training, with 58% of women reporting a breastfeeding-training time of less than 5 minutes in those without an adequate counselling. Most patients (21 out of 22, 95.5%) stated that they would have breastfed their child if they could. Breastfeeding avoidance in women with SLE is typically brought on by a triad of personal preference,

TABLE 1

1. Have you received pre-conceptional counselling?
- Yes - No
2. For how long were you able to discuss about pregnancy planning with Your healthcare providers?
- one session - multiple session
3. In pre-conceptional counselling, were you informed on breastfeeding?
- Yes - No
4. Why did you not breastfeed?
- healthcare professional advice - fear that the undertaken drugs could be delivered to the baby - fear that the autoantibodies and the disease might have been transferred to the baby - not applicable to my case
5. Who, among healthcare professionals, advised you not to breastfeed
- general practice doctor – rheumatologist – gynecologist - nurse/obstetrician - training physician (student, intern, resident) - not applicable in my case
6. Did you seek out different medical opinions before deciding to breastfeed (or not to breastfeed)
- Yes - No
7. After you gave birth, did you receive detailed information on how to breastfeed, and were you trained to do it?
- Yes - No
8. For how long healthcare professionals (doctors, nurses) have informed and trained you about breastfeeding
- less than 5 minutes - 15 minutes - 30 minutes - multiple times during my hospitalization - i received training and support for several days after being discharged from the hospital
9. Were informative materials on breastfeeding provided to you by healthcare professionals?
- Yes - No
10. If you not breastfed because of temporary neonatal complications, were you trained and supported in milk production maintenance?
- Yes – No -Not applicable to my case
11. The choice of not breastfeeding was influenced by society's demands?
- Yes - No
12. Your choice of not breastfeeding was influenced by:
- work-related issue (lack of space and time to breastfeed) - lack of support from family members and friends - none of the aforementioned
13. Have you felt overwhelmed by the delivery and the first days that came after it?
- Yes - No
14. Your choice of not breastfeeding was influenced by the belief that formula milk was healthier for the baby compared to the mother's milk?
- Yes - No
15. Would you have breastfed if you could have?
- Yes - No
16. Do you think dedicated counseling could have changed your approach to breastfeeding?
- Yes - No
17. Do you have any suggestions on how to implement breastfeeding awareness?

professional counsel, and societal norms. An installation of patients-to-patients network, coupled with an update of health practitioners, may help to increase the frequency of breastfeeding in women with SLE and therefore improve patients' treatment.

PO1:07 | Contraception in women with rheumatic disease: What's stopping them?

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Lim, S.W.C., Yang, L., Tan, W.X., Goh, L.H., Leung, Y.Y., Tan, L.K., Poh, Y.J. Contraception in women with rheumatic disease: What's stopping them?

Purpose

Rheumatic diseases are common in women of childbearing age. Unplanned pregnancies should be avoided because of the potential adverse impact of active disease and teratogenic medications on pregnancy outcomes. Contraception is thus crucial for preventing poorly timed pregnancies.

However, uptake of contraception remains low. This study aims to explore attitudes towards contraception, the degree of pre-conception knowledge amongst women with rheumatic disease and identify factors that can influence appropriate use of contraception.

Methods

A cross-sectional study was conducted in a Singapore tertiary centre where 298 women with rheumatic disease were surveyed during clinic follow-up. The survey included questions on use and knowledge of contraceptives, understanding of rheumatic disease, its medications and its impact on pregnancy and fertility, and patient demographics. Diagnosis, disease activity and medications were completed by their primary physician.

Results

Of 298 women surveyed, 23 (7.7%) were trying to conceive and 92 (30.9%) avoiding pregnancy. 138 (46.3%) were taking teratogenic drugs of whom only 35.5% (49/138) used contraception.

Across the cohort, 32.6% (97/298) used contraception in the last year, with 22.5% (67/298) using contraception consistently. Barrier methods were most used (66%; 64/97), followed by withdrawal (34%; 33/97). Only 15 (15.5%) women used effective long-acting reversible contraceptives.

The commonest reasons for non-usage of contraception was thinking they would not get pregnant (38/201; 18.9%) and concerns regarding side effects (29/201; 14.4%). 2.5% (5/201) cited not being told contraception was required; while others stated not knowing how to use (11/201, 5.5%) or where to obtain contraception (6/201, 3%) respectively. Merely 20.8% (62/298) received contraceptive counselling.

42.3% (126/298) received pre-conception counselling regarding the timing and risks of pregnancy, with 22.5% (67/298) receiving this within the last year. A third of women were unsure of the influence of pregnancy on disease activity or impact of their diagnosis on fertility.

Conclusions

In our cohort, patients had poor knowledge regarding fertility, pregnancy and contraception, and low rates of contraceptive and pre-conception counselling. It is therefore crucial to enhance patient education, emphasise the importance of a well-timed pregnancy and eliminate misconceptions. This may be done via standardised counselling templates and multidisciplinary collaboration.

PO1:09 | Contraceptive choices differ between women with systemic lupus erythematosus and rheumatoid arthritis

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Citation

Siegel, C., Barbhaiya, M., Masto, L., Smole, A., Stamm, B., Levine, J., Lieber, S., Mandl, L., Lockshin, M., Sammaritano, L. Contraceptive choices differ between women with systemic lupus erythematosus and rheumatoid arthritis.

Purpose
Women with rheumatic diseases (RDs) may experience pregnancy complications associated with their underlying disease and teratogenic medication use. Prevention of unplanned pregnancy mitigates this risk. However, effective contraception is underutilized by women with RD. This study aims to compare contraception use and factors impacting contraceptive choices between women with systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA).

Methods
Women aged 18-65 years seen by a Hospital for Special Surgery rheumatologist >/=2 times from 2020-2022 were enrolled in the Rheumatology Women's Reproductive Health and Wellness Cohort. This analysis included participants with self-reported SLE or RA who provided contraception information. We excluded participants with self-reported menopause/premature ovarian failure, hysterectomy and/or oophorectomy, or infertility. We used descriptive statistics to compare contraception information between participants with SLE and RA. For Likert-scale questions rating the importance of factors impacting contraceptive choices (1=not at all important, 4=very important), we calculated the proportion rating each factor "very important."

Results
Of 556 participants, 105 with reproductive capacity and SLE (n=40) or RA (n=65) were included. Mean age was 37.1 $\pm$ 8.3 years and 60 (58.3%) were married/partnered. Compared to women with RA, those with SLE were less frequently White (59.0% vs. 80.7%, p=0.04) and more frequently Hispanic/Latina (25.0% vs. 7.8%, p=0.02). Other sociodemographic characteristics did not differ.

Thirty-one (29.5%) participants reported teratogen use. Compared to women with RA, those with SLE more commonly recalled discussing contraception

with their rheumatologist (50.0% vs. 21.5%, p=0.002) and less frequently used moderately/highly effective contraception (20.0% vs. 56.4%, p<0.001) (Table 1). Factors most frequently deemed "very important" for contraceptive choice by those with RA and SLE were "interaction with rheumatology medications" (81.9%) and "does not worsen rheumatic disease" (79.1%) (Table 2), with no differences between groups.

TABLE 1: Teratogenic medication and contraception use in women with reproductive capacity with SLE versus RA

Variable – N (%)	SLE (N=40)[1]	RA (N=65)	*p-value*
Teratogenic Medication Use (current)[2]	10 (25.0)	21 (32.3)	0.43
• Leflunomide	0 (0)	2 (3.1)	
• Methotrexate	2 (5.0)	19 (29.2)	
• Mycophenolate Mofetil/Mycophenolic Acid	7 (17.5)	0 (0)	
• Warfarin	1 (2.5)	0 (0)	
Rheumatologist Discussed Contraception (ever)	20 (50.0)	14 (21.5)	*0.002*
Permanent Contraception[3]	4 (10.0)	10 (15.6)	0.49
• Bilateral tubal ligation	2 (5.0)	4 (6.3)	
• Partner vasectomy	2 (5.0)	6 (9.4)	
Reversible Contraception Use (current)[4]	**SLE (N=35)[5]**	**RA (N=55)[5]**	
Moderately/Highly Effective Methods[6]	7 (20.0)	31 (56.4)	*<0.001*
• Intrauterine device (IUD)	5 (14.3)	8 (14.6)	
• Subdermal implant	1 (2.9)	2 (3.6)	
• Birth control pill	1 (2.9)	20 (36.4)	
• Vaginal ring	0 (0)	1 (1.8)	
Least Effective Methods[6]	18 (51.4)	8 (14.6)	*<0.001*
• Barrier methods	16 (45.7)	5 (9.1)	
• Fertility awareness or withdrawal	2 (5.7)	3 (5.5)	
No Contraception Use (current)	10 (28.6)	16 (29.1)	0.96

1. Includes 6 individuals who also self-reported antiphospholipid syndrome (contraceptive methods: 1 partner vasectomy, 1 IUD, 4 barrier methods).
2. No one reported cyclophosphamide or thalidomide/lenalidomide use.
3. Excluded 1 participant with RA who declined to respond (n=64 for RA group).
4. When ≥1 contraceptive method was reported, the method with higher efficacy was counted. No one reported birth control patch or medroxyprogesterone acetate (Depo-Provera) use.
5. Excluded 14 participants who reported permanent contraception and 1 in SLE group who declined to respond.
6. Highly effective: <1% of women per year will become pregnant with typical use; Moderately effective: 5-10% of women per year will become pregnant with typical use. Least effective: >10% of women per year will become pregnant with typical use.

TABLE 2: Relative importance of factors impacting contraceptive choice among women with SLE and RA, Baced on proportion rating each factor " Very important"

Factor – N (%)	Overall (N=105)	SLE (N=40)	RA (N=65)	p-value
Interaction with rheumatology medications	86 (81.9)	34 (85.0)	52 (80.0)	0.70
Does not worsen rheumatology disorder	83 (79.1)	35 (87.5)	48 (73.9)	0.10
Side effects	82 (78.1)	33 (82.5)	49 (75.4)	0.39
Effective at preventing pregnancy	74 (70.5)	29 (72.5)	45 (69.2)	0.89
Convenience	69 (65.7)	26 (65.0)	43 (66.2)	0.90
Effective at preventing sexually transmitted infections	52 (49.5)	19 (47.5)	33 (50.8)	0.74
Provides benefits other than preventing pregnancy	51 (48.6)	19 (47.5)	32 (49.2)	0.86
Expense	35 (33.3)	12 (30.0)	23 (35.4)	0.57
Partner support	26 (24.8)	12 (30.0)	14 (21.5)	0.33
Friend/family support	9 (8.6)	3 (7.5)	6 (9.2)	0.96
Religion	5 (4.8)	2 (5.0)	3 (4.6)	0.93
1. Participants were asked to rate the importance of each factor when choosing a contraceptive method on a Likert scale: 1=Not at all important, 2=Slightly important, 3=Somewhat important, 4=Very important, 5=Not relevant.				

Conclusions

Among women with reproductive capacity seen in an academic rheumatology center, those with SLE versus RA were more likely to have discussed contraception with their rheumatologist but less likely to use moderately/highly effective methods. All participants considered RD-related factors most important when choosing contraception. Our findings suggest a need for patient and provider education to increase effective contraception use, particularly in at-risk patients with SLE.

PO1:10 | A systematic intervention to increase ascertainment of pregnancy intention and improve pregnancy planning for women with SLE

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Citation
Sims, C.S., Eudy, A., Doss, J., Sun, K., Sadun, R., Rogers, J., Criscione-Schreiber, L., Clowse, M. A systematic intervention to increase ascertainment of pregnancy intention and improve pregnancy planning for women with SLE.

Purpose

Pregnancies in women with SLE occurring when she is not medically ready can have long-term health consequences. Pregnancy should coincide with periods of disease quiescence, when the woman is not taking a teratogenic medication, and the continuation of pregnancy-compatible medications. Health disparities have an impact on the planning and outcomes of pregnancy. Black women are more likely to experience severe maternal morbidity. To characterize our response to these needs, a combination of patient characteristics and management decisions have been compiled into a Pregnancy Planning Quality Scoring system.

Methods

All study participants were adult women enrolled in a prospective registry and met SLICC criteria for SLE. Race was self-reported. On an intake form for each SLE clinic visit, women answered 1) "Would you like to get pregnant in the next 12 months?" and 2) contraceptive use. Women were defined as 'not medically ready for pregnancy' if prescribed a teratogen, had proteinuria greater than or equal to 500 mg, or had a physician's global assessment of greater than or equal to 1.5. We identified 10 Pregnancy-Planning Quality Measures, aligned with the ACR Reproductive Health Guidelines. Each woman received one-point for each instruction she received.

Results

The survey was completed by 152 women of reproductive age. Of these, 63% were Black and 7% Hispanic. Pregnancy interest was reported by 26 (17%) women with an average age of 32.7 years. Of the 17% of women interested in pregnancy, 65% identified as Black and 15% identified as Hispanic. A total of 12 (46%) were not medically ready for pregnancy at their visit. Contraception was utilized in 64% of all patients and 60% of Black patients. Table one identifies 10 Pregnancy-Planning Quality Measures utilized to evaluate

TABLE 1

Pregnancy Planning Quality Measure	Overall	Non-Black	Black	p-value
MD Knew Intended Pregnancy	25 (96%)	9 (100%)	16 (94%)	1.0
Documented Use of HOP-STEP Handout	8 (31%)	1 (11%)	7 (41%)	0.2
Of Those on a Teratogen: A Teratogen Switch Plan	8/10 (80%)	2/3 (67%)	6/7 (86%)	1.0
HCQ Prescribed	25 (96%)	9 (100%)	16 (94%)	1.0
Azathioprine Used	14 (54%)	6 (67%)	8 (47%)	0.4
Told to Continue Pregnancy Compatible Medications	24 (92%)	9 (100%)	15 (88%)	0.5
Multivitamin	13 (50%)	6 (67%)	7 (41%)	0.4
Referred to MFM	7 (27%)	3 (33%)	4 (24%)	0.7
Known aPL	25 (96%)	8 (89%)	17 (100%)	0.3
aPL+	3/25 (12%)	1/8 (13%)	2/17 (12%)	1.0
Known Ro/La	25 (96%)	8 (89%)	17 (100%)	0.3
Ro/La+	13/25 (52%)	2/8 (25%)	11/17 (65%)	0.1
Pregnancy Planning Quality Score (0-10) Mean (SD)	7.3 (1.6)	7.4 (1.4)	7.2 (1.8)	0.7

TABLE 2

Pregnancy Incompatible Factor	Overall N=26	Non-Black N=9	Black N=17	p-value
Not Ready for Pregnancy	10 (38%)	2 (22%)	8 (47%)	0.4
On a Teratogen	8/10 (80%)	2/2 (100%)	6/8 (75%)	
MMF	6	1	5	
MTX	2	1	1	
CYC	0	0	0	
Leflunomide	0	0	0	
Proteinuria ≥500mg	2/10 (20%)	0 (0%)	2 (25%)	
PGA ≥1.5	2/10 (20%)	0 (0%)	2 (25%)	
Ever on a Teratogen	10 (38%)	3 (33%)	7 (41%)	1.0
Ever Proteinuria ≥ 500 mg	4 (15%)	1 (11%)	3 (18%)	1.0
Ever PGA ≥ 1.5	7 (27%)	3 (33%)	4 (24%)	0.7

pregnancy readiness. There were no statistically significant differences in the Pregnancy Planning Quality Score between Black and non-Black patients (Table 2).

Conclusion

This study demonstrates eliciting patient-reported measures of pregnancy interest and pregnancy planning are feasible. Black women represented the majority of patients interested in pregnancy, but most were not medically ready. Improved planning of pregnancy is the most direct route to improve pregnancy outcomes for women with SLE.

PO1:11 | The impact of U.S. Abortion policy on rheumatology clinical practice: A survey of rheumatologists

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Citation

Birru, M.B., Bermas, B., Blanco, I., Blazer, A., Clowse, M., Donley, G., Edens, C., Pierce, L., Wright, C., Ramsey-Goldman, R. The impact of U.S. Abortion policy on rheumatology clinical practice: A survey of rheumatologists.

Purpose

In June 2022, the U.S. Supreme Court's decision in Dobbs v. Jackson Women's Health removed the federal constitutional right to abortion. Approximately one-third of states have since banned or plan to greatly restrict abortion access. We distributed a confidential online survey to a sample of U.S.-based rheumatologists to learn how the Dobbs decision might affect clinical practice around teratogen prescribing, abortion referrals, and perceived vulnerability to criminalization.

Methods

This study was designated as exempt by the University of Pittsburgh Institutional Review Board. Survey QR codes were disseminated in November 2022: 1) during a reproductive health plenary session at the American College of Rheumatology (ACR) national meeting; 2) via Twitter by study investigators during the ACR meeting. Results were analyzed by descriptive statistics or chi-square tests, which compared responses by respondents' practice in abortion-restricted or protected states.

Results

Most respondents (N=152) identified as female (80.3%), practiced in academic settings (76.3%), and were in their early careers (fellows: 13.2%, less than 10 years of independent practice: 47.4%). Approximately 47% of respondents practiced in abortion-restricted states. Half of respondents reported that at least one of their patients had ever become pregnant while prescribed a teratogen (e.g., methotrexate, mycophenolate), and 34% had ever recommended abortion to a patient pre-Dobbs. Rheumatologists in abortion-restricted states were more comfortable referring patients for abortion without fear of reprisal prior to Dobbs than post-Dobbs (83.1% and 34.8%, respectively; $p<0.001$). Rheumatologists in restricted vs protected states were marginally more likely to report that they had changed or planned to change how often they prescribed methotrexate (13.0% vs 5.3%, $p=0.146$) and/or mycophenolate (8.7% vs 1.32%, $p=0.05$) to young, female patients.

TABLE 1: Rheumatologists' responses to survey about the impact of the *Dobbs v. Jackson Women 's Health* Supreme Court decision on clinical practice

	Responses % (N)		
	Practice in Abortion-Restrictive State (N= 71)	Practice in Abortion-Protected State (N=77)	*P value***
Have you ever recommended that a patient terminate a pregnancy?			
Yes	21 (29.6)	29 (36.7)	0.299
No	50 (70.4)	48 (62.3)	
Would you have felt comfortable referring a patient for abortion care in your state **before** the Dobbs decision?			
Yes	59 (83.1)	69 (89.6)	0.247
No	12 (16.9)	8 (10.4)	
Have any of your patients ever become pregnant while using a teratogenic medication?			
Yes	34 (47.9)	40 (52.0)	0.622
No	37 (52.1)	37 (48.0)	
Approximately what percentage of reproductive-age women with rheumatoid arthritis do you prescribe methotrexate to?			
<50%	24 (33.8)	36 (46.8)	0.109
50% or more	47 (66.2)	41 (53.2)	
Post-*Dobbs* clinical practices and attitudes			
	Abortion Restrictive State (N= 69)*	Abortion Protected State (N=76)	
Are you comfortable referring a patient for abortion care in your state without fear of professional or personal reprisal?			
Yes	24 (34.8)	69 (90.8)	**<0.001**
No	45 (65.2)	7 (9.2)	
Have any of your patients experienced challenges filling their **methotrexate*** prescriptions?			
Yes	16 (23.2)	9 (11.8)	0.071
No/Not sure	53 (76.8)	67 (88.2)	
Have you personally changed or do you plan to change how often you prescribe methotrexate to reproductive-age females with rheumatoid arthritis who are not pregnant and not immediately planning for pregnancy?			
Yes	9 (13.0)	4 (5.3)	0.146
No/Not sure	60 (87.0)	72 (94.7)	
Have you changed or plan to change how often you prescribe **mycophenolate mofetil*** to reproductive-age females with lupus nephritis who are not pregnant and not immediately planning for pregnancy?			
Yes	6 (8.7)	1 (1.3)	0.054
No/Not sure	63 (91.3)	75 (98.7)	
Have you personally changed or do you plan to change how often you prescribe new medications with unknown or unclear teratogenic potential to reproductive-age women who are not pregnant and not planning for pregnancy?			
Yes	7 (10.1)	3 (4.0)	0.193
No/Not sure	62 (89.9)	73 (96.0)	
*- Methotrexate and mycophenolate are teratogens.			

Conclusions

Our results suggest that rheumatologists' prescribing patterns of evidence-based teratogens may change post-Dobbs, particularly in abortion-restricted states. Study limitations include uncertain representativeness of the sample: the response rate cannot be calculated due to social media dissemination, and rheumatologists with a greater interest in reproductive health may have been more likely to respond to the survey. Nonetheless, our findings underscore that a concerted public health response is urgently needed to protect the healthcare of female patients with rheumatic diseases post-Dobbs.

PO1:12 | Use of contraception in women with immune-mediated rheumatic diseases

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Citation

Gagliardi, C.,_Gerardi, M.C., Giacobbe, E., Ughi, N., Benedetti, S., Di Raimondo, G., Ascione, A., Barichello, M., Epis, O. Use of contraception in women with immune-mediated rheumatic diseases.

Purpose

To investigate the use of contraception in patients of fertile age with immune-mediated rheumatic disease and to improve the level of awareness and information of these patients regarding one's reproductive health and family planning.

Methods

In January 2023 a Reproductive Health Counseling Clinic was created. A survey about reproductive health (sexuality, contraception, fertility, pregnancy and lactation) in relation to the disease has been submitted to every patient with immune-mediated disease aged between 18 and 50 years. The last question of the survey aimes to investigate their need to receive information about one or more aspects of their reproductive health as part of a counseling carried out by dedicated rheumatologists. In the present study data about contraception in women were analysed.

Results

From January to March 2023, 108 patients completed the survey: 70 women (64,8%) and 38 men (35,2%), mean age 41,2 years and mean disease duration 10 years. The use of different contraceptive methods in women with immune-mediated rheumatic diseases is described in Table 1. Among the 70 women,

TABLE 1: Contraceptive methods used by women with immune-mediated rheumatic diseases PsA=Psoriatic Arthritis; RA=Rheumatoid Arthritis; SLE=Systemic Lupus Erythematous; SpA=Spondyloarthritis; VAS=Vasculitis.

	Total (N=70)	RA (N=34)	SLE (N=11)	PsA (N=7)	VAS (N=7)	SpA (N=5)	Other (N=5)	Missing data (N=1)
No contraception	31 (44,3%)	13 (38,2%)	5 (45,4%)	3 (42,8%)	5 (71,4%)	3 (60%)	1 (20%)	0 (0%)
Barrier method	27 (38,6%)	15 (44,1%)	5 (45,4%)	2 (28,6%)	2 (28,6%)	1 (20%)	2 (40%)	0 (0%)
Estroprogestinic pill	5 (7,1%)	3 (8,8%)	1 (9,1%)	1 (14,3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Intrauterine device	7 (10%)	5 (14,7%)	1 (9,1%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	0 (0%)
Progestinic pill	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Estrogenic transdermal patch	1 (1,4%)	1 (2,9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Estroprogestinic transdermal patch	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Other	2 (2,9%)	1 (2,9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)
Missing data	3 (4,3%)	1 (2,9%)	0 (0%)	1 (14,3%)	0 (0%)	0 (0%)	1 (20%)	1 (100%)

17 (24,3%) were being treated with drugs incompatible with pregnancy (13 methotrexate, 4 mycophenolate mofetil): 7/17 (41,2%) reported taking contraceptive therapy regularly (3 estroprogestinic pill, 3 intrauterine device, 1 other), 3/17 (17,6%) reported not taking any contraceptive therapy but using barrier contraceptive methods regularly, 7/17 (41,2%) reported not adopting any contraceptive method. Regarding the last question of the survey, 24/70 (34,3%) women expressed the need to receive information on reproductive health as part of a counseling. Among the 17 women treated with teratogenic drugs, only 4 (23,5%) requested reproductive health counseling.

Conclusions

The use of effective contraceptive methods is a relevant issue for women with immune-mediated rheumatic disease, particularly during active disease or during treatment with teratogenic drugs. Nevertheless, the preliminary analysis of our experience shows that the use of contraception in patients of childbearing age needs more attention by rheumatologist. Contraception and family planning should be addressed in a timely and effective manner in all patients and verified regularly during follow-up in order to optimize the management of our patients and to preserve maternal-fetal health as much as possible.

PO1:13 | Revmamas – A podcast for people with rheumatic disease who are planning a pregnancy or are pregnant

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Citation
Nilssen, I.R., Helbostad, L., Lian, N., Jakobsen, B. Revmamas – A podcast for people with rheumatic disease who are planning a pregnancy or are pregnant.

Purpose
There is an unmet need for high quality and accessible patient information on pregnancy and rheumatic diseases.

The Norwegian National Advisory Unit on Pregnancy and Rheumatic Diseases (NKSR) primary task is to spread updated knowledge. To reach out to the target population in this digital era, NKSR uses social media, such as Facebook and Instagram, in addition to YouTube.

As a natural next step we wanted to establish a podcast on different topics related to pregnancy and rheumatic diseases so patients and partners could have easy access to high quality reliable information at all times and for all of Norway.

Methods

Based on webinars published on YouTube from NKSR during the pandemic, we edited and published six podcast episodes. We had help from the department of communications to adjust the podcast for publication. We chose a platform for podcasts without fees and easy access to make sure it was available for everyone.

Results

We published six podcast episodes as season one. A multidisciplinary team with rheumatologist, nurse, midwife, patient representatives, partner and occupational therapist participated in the podcast. The episodes have the following topics: Planning a pregnancy, preparing for birth, patient experience, fatigue and everyday activities with small children, partners perspective and men and anti-rheumatic medications. The episodes lasts from 16 to 27 minutes. The podcast was available on the used platforms for podcast listeners in Norway. We used NKSR platforms in social media to spread the word about the podcast.

Conclusions

Using podcast as a platform to spread high quality and knowledge based patient information can be effective to increase accessibility of patient information. The episodes are available on demand, regardless of where you live. People with rheumatism can stream the short episodes whenever convenient, for example in the car, one the buss to work, when walking the dog or when doing chores. Planning of season two has already begun.

PO2:15 | Changes in the use of TNF-inhibitors before, during and after pregnancy from 2006-2022 in women with juvenile idiopathic arthritis

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Citation
Bjørngaard, H., Koksvik, H.S., Jakobsen, B., Wallenius, M. Changes in the use of TNF-inhibitors before, during and after pregnancy from 2006-2022 in women with juvenile idiopathic arthritis.

Purpose

The EULAR points to consider published in 2016, introduced international guidelines for the use of tumor-necrosis factor (TNF)- inhibitors during pregnancy and lactation. Later, American College of Rheumatology (ACR)

published guidelines in 2020, and further British Society of Rheumatology (BSR) during 2022. The guidelines state increasing knowledge about use of TNF-inhibitors during pregnancy and lactation. The objective of the study was to study time trends in the use of TNF-inhibitors before conception, during pregnancy, 6 weeks and 6 months postpartum, in women with juvenile idiopathic arthritis (JIA).

Methods

Data on women diagnosed with JIA included in the nationwide Norwegian quality register RevNatus from 2006-2022 were analyzed. Prospectively, the register collects information about the use of medications including TNF-inhibitors at visits preconception, each trimester and 6 weeks and 6 months postpartum.

Results

During 2006-2015 less than 5% of the women included used TNF-inhibitors during pregnancy. An increasing proportion of patients used TNF-inhibitors during first and second trimester in the period 2016-2019. From 2020 onwards, TNF-inhibitors have been used during all trimesters, and especially during the first and second trimester. The table summarize our results.

TABLE 1

2006 – 2015 N= 135 pregnancies					2016 - 2019 N= 87 pregnancies					2020 - 2022 N= 242 pregnancies				
Pre-conception (%)	Pregnancy (%) Trimester			Post-partum (%)	Pre-conception (%)	Pregnancy (%) Trimester			Post-partum (%)	Pre-conception (%)	Pregnancy (%) Trimester			Post-partum (%)
	1st	2nd	3rd	6w 6m		1st	2nd	3rd	6w 6m		1st	2nd	3rd	6w 6m
39		<5		25 50	39	15	9	0	15 50	43	36	26	15	38 46

6w= 6 weeks postpartum, 6m=6 months postpartum

Conclusion

Treatment with TNF-inhibitors during pregnancy and postpartum have been constantly increasing in women with JIA since the introduction of international guidelines.

PO2:17 | Pregnancy outcome after exposure to upadacitinib up to 12 weeks of pregnancy: A case report

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Citation

Cascarano, G., Zucchi, D., Monacci, F., Elefante, E., Ietto, C., Gori, S., Gelsi, V., Chesi, F., Tani, C., Mosca, M. Pregnancy outcome after exposure to upadacitinib up to 12 weeks of pregnancy: A case report.

Purpose

The use of safe pregnancy drugs is a major concern in treating rheumatological diseases in pregnant patients. There are insufficient or limited data on the use of several drugs in pregnant women. Upadacitinib is a Janus-kinase inhibitor recently approved for the treatment of rheumatoid arthritis(RA). Nowadays, there are no data on the use of upadacitinib in pregnant women and it is therefore contraindicated during pregnancy. Animal studies have shown upadacitinib to be teratogenic in mice and rabbits at the bone and heart level, respectively.

Methods

We present the case of a 45 years-old woman with seronegative-RA who was under treatment with upadacitinib at the time of conception and continued it until the detection of pregnancy at week 12.

Results

She was diagnosed with seronegative RA at 18 years old, and over the years she and was treated with several DMARDs including hydroxychloroquine and methothrexate but all these drugs were discontinued due to adverse effects or failure in control disease activity. In 2019 she was treated with baricitinib, then replaced with upadacitinib due to loss of efficacy. Good disease control was achieved with upadacitinib treatment, and also complete GC withdrawal was achieved in October 2021. The patient returned to our clinic in February 2022 at 16+5 weeks gestation. She had been on Upadacitinib therapy until 12+2 weeks, after which she continued with vitaminD therapy alone. During her first visit, she reported no arthritis symptoms but complained of mechanical low-back pain, which was treated with Paracetamol with benefit. The patient's pregnancy progressed without any flare-ups of disease or obstetric complications. Following a previous caesarean-section during her first pregnancy in 2013, the patient delivered a male infant via caesarean-section at 39 weeks. The infant weighed 3960g, was classified as LGA, and had an APGAR score 9. One month after delivery, the patient experienced a flare-up of the disease treated with GC and Certolizumab.

Conclusion

The patient, although on Upadacitinib therapy in the first trimester, carried the pregnancy without the development of serious obstetric complications and in the absence of serious fetal malformations. Therefore, further research is needed to determine the drug's potential risks/benefits for pregnant women.

PO2:19 | Belimumab during pregnancy: A case report

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Citation
Cirilli, F., Ruffilli, F., Padovan, M., Morano, D., Govoni, M. Belimumab during pregnancy: A case report.

Introduction

The use of belimumab during pregnancy is not recommended, due to the lack of clear data available. We report the case of a patient with active systemic lupus erythematosus (SLE) treated with belimumab during the entire pregnancy.

Case Report

32 years Caucasian woman diagnosed with SLE from the age of 13. During the follow-up she has been treated with a variable dose of prednisone and many csDMARDs for active SLE with prevalent articular and cutaneous manifestations, with an average SLEDAI-2K of 10.

In 2014 she started belimumab in association with mepacrine, hydroxychloroquine and prednisone, achieving clinical remission. All the previous csDMARDs have been withdrawn for loss of efficacy/intolerance.

In 2020 she was seen for her first pre-conceptional counseling so a pregnancy-compatible therapy plan was made, withdrawing mepacrine and continuing the other medications, stating that belimumab would have been discharged at pregnancy positive test.

In March 2022 she became pregnant with heterologous in vitro fertilization due to primary infertility in surgically treated endometriosis associated with diminished ovarian reserve. She was already on prophylactic anticoagulation with low molecular weight heparin during ovarian stimulation and after confirming a positive pregnancy test she was administered low-dose aspirin.

At 8 weeks of pregnancy she suffered a cutaneous and articular flare with a proteinuria of 330 mg/ 24h, SLEDAI-2K 10. On that occasion it was decided to maintain belimumab throughout the pregnancy, adding topical tacrolimus and increasing prednisone at 10mg/d, achieving disease remission.

At the 17th week the fetus was discovered with partial situs inversus and cardiac malformation. A pericentric inversion in the 10th chromosome, also present in the paternal chromosomal set, was discovered.

At 35 weeks she was admitted to the hospital due to uncontrolled low back pain and a cesarean section was performed. A female baby was delivered, weighing 2103 g. A CT of the lumbar spine revealed vertebral deformities and she started teriparatide. The child is currently developing normally despite cardiac malformations.

Conclusions

the use of belimumab throughout pregnancy in this patient with severe SLE disease phenotype was well tolerated and helped control active SLE obtaining a good pregnancy and foetal outcome.

PO2:20 | Management of an axial spondyloarthritis during pregnancy: Disease activity versus drug treatment

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Citation
Oblu, A.G., Opris-Belinski, D., Balanescu, A. Management of an axial spondyloarthritis during pregnancy: Disease activity versus drug treatment.

Purpose

Spondyloarthritis (SpA) is the second most common chronic rheumatic inflammatory disease affecting women during their reproductive years. We present a case of a woman with SpA who became pregnant while undergoing treatment with anti-TNF-alpha and the challenges for both patient and physician related to that, as well as the management approach.

Methods

We describe a case of a 37-year-old nulliparous woman with HLA-B27-positive SpA diagnosed in 1997, who had been receiving treatment with NSAIDs until 2009 when it was switched to anti-TNF-alpha -Etanercept, due to loss of response. The patient presented at our clinic at 6 weeks gestation in August 2014. At that moment she was in clinical and biological remission and given the scarce data and the potential risks associated with anti-TNF-alpha during pregnancy, the discontinuation of the treatment was decided. Short time after, the patient developed a flare-up with intense inflammatory back pain, prolonged morning stiffness and moderate increase of CRP value. Because the symptoms were worsening and had led to functional disability of the patient and moreover the certain risks of NSAIDs frequent usage, she requested to resume the biological treatment, which was done under close monitoring. The dosage of Etanercept was tapered at 10-14 days and the patient's response was evaluated.

Results

The patient resumed Etanercept during the second trimester and her symptoms improved, the CRP value normalized and even achieved remission. She continued to do well with no specific events throughout the pregnancy. A C-section was performed on account of patient's age and disease status and a healthy baby was delivered at 37 weeks gestation, weighing 2790g.

Conclusion

SpA can cause difficulties for women of reproductive age who want to concieve. The use of anti-TNF-alpha therapy during pregnancy can be associated with potential risks due to molecules transportation across the placenta (except Certolizumab). Likewise higher disease activity in SpA was linked to adverse pregnancy outcomes like preterm birth and low birthweight. Although newer literature data showed no increased maternal or infant adverse outcomes during anti-TNF-alpha treatment, the physician needs to weigh up the benefits and harms of treating or not treating a patient.

PO2:21 | The role of complement activation in adverse obstetric outcomes: Beyond the antiphospholipid antibody syndrome

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Citation
Cavallo, L., Venerandi, B., Canti, V., De Lorenzo, R., Pasi, F., Castiglioni, M.T., Rovere-Querini, P. The role of complement activation in adverse obstetric outcomes: Beyond the antiphospholipid antibody syndrome.

Background
Complement activation is associated with a higher risk of adverse pregnancy outcomes (APOs) in conditions such as antiphospholipid antibody syndrome (APS). As of yet, complement activation in APOs has not been studied outside of specific maternal conditions. The aim of this study is to investigate if RPL/RIF patients with lower preconceptional complement levels may have higher incidence of APOs irrespective of APS status and provide information regarding possible medical treatment.

Methods
We collected data of 398 pregnancies (44 APAS, 228 RPL, 126 RIF) prospectively followed in the "Recurrent pregnancy loss and Recurrent implantation failure clinic" of "Centro Scienze della Natalità" in San Raffaele Hospital from September 2018 to December 2022.

Results
We measured preconceptional complement level (C3/C4) in a subgroup of 184 patients with previous history of RPL and/or RIF. We divided this cohort into two groups: 150 patients RPL/RIF without APS and 34 patients with APS. As a whole, 33/184 patients had C-reduced levels and 11 of them got pregnant. APOs seemed to occur more frequently in C-consumed patients. Patients with no miscarriages history were 24 (12%) in no-C-consumed group vs 1 (2,3%) in C-consumed group. Consistently C-consumed patients had higher frequency of multiple miscarriages (>3): 8/44 (18%) vs. 28/198 (14%).

Patients with pre-conceptional complement consumption had a higher foetal birth rate(20/27,74% vs 45/78,58%) but also more pregnancy complications (5/27,19%vs 5/78,6%). Considering patients who delivered successfully from the beginning of the follow-up (56/183), there were not differences in the neonatal outcomes. Hypocomplementemia was associated with a significantly higher ($p<0.05$) probability of treatment with low dose aspirin (LDA), low-molecular-weight heparin (LMWH), hydroxychloroquine (HCQ) or their combinations.

Conclusions
Preconceptional complement assay is an easy and cheap tool to identify patients at higher risk of APOs. Notably, hypocomplementemia is associated with a significantly higher probability of treatment during pregnancy: these evaluations could explain the uniformity in gestational outcomes between the two groups. Safety profile of HCQ was strengthened by the neonatal outcomes in women treated during gestation. This study underlines the importance of a personalised diagnostic-therapeutic approach in patients with RPL and RIF, irrespective of the presence of APS.

PO2:23 | Exposure to golimumab during pregnancy – final results from the nordic register-based pregnancy study and the updated results from the company's global safety database

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Citation
Otero-Lobato, M.,_Gembert, K., Karlsson, P., Leinonen, M.K., Pedersen, L., Adeyemo, A., Higley, M., Gissler, M., Sørensen, H.T., Cesta, C.E., Geldhof, A., Esslinger, S. Exposure to golimumab during pregnancy – final results from the nordic register-based pregnancy study and the updated results from the company's global safety database.

Background
Rheumatologic conditions and inflammatory bowel disease can affect women of childbearing potential. Golimumab (GLM) is approved for several rheumatologic indications and ulcerative colitis.

Objectives
To characterize the pregnancy and infant outcomes in women treated with GLM, by presenting the final results from a company-sponsored post-marketing study (GLM PRI) and the updated results from the company's global safety database (GSD).

Methods
GLM PRI: data from Denmark, Finland and Sweden national health registers on maternal characteristics, pregnancy and infant outcomes of women exposed to GLM during (or < 3 months prior to) pregnancy and of women exposed to non-biologic systemic therapy (NBS) and women in general population.

Company's GSD: reports of medically confirmed pregnancies with maternal exposures to GLM during (or <3 months prior to) pregnancy and with known pregnancy outcome.

Results
GLM PRI final study: 134 liveborn infants exposed to GLM in utero (no stillbirths): 4.5% diagnosed with a major congenital anomaly (CA) vs 5.5% of infants exposed to NBS and vs 4.6% in general population. Adjusted risk

analyses for major CA were pre-specified; no increased risk of major CA in GLM relative to NBS or to general population was observed (OR 0.79 [95% CI 0.35-1.81] and 0.95 [95% CI 0.42-2.16], respectively). None of the other pregnancy/ infant outcomes met predefined criteria for adjusted analyses.

Company's GSD: 543 pregnancy cases (261 prospective, 282 retrospective). Of the 261 prospective: 218 (83.5%) live births, 31 (11.9%) spontaneous abortions, 13 (5.0%) elective abortion, and 2 (0.8%) intrauterine death. Rate of major CA was 2.7% (1.8% of major CA in live births).

Conclusion

GLM PRI final study results showed no increased risk of major CA following in utero exposure to GLM relative to NBS or to general population. Limitations: adjusted analyses not performed for all pregnancy and infant outcomes, study limited to the Nordic population and only included births from 22 weeks of gestation onwards. Company's GSD: the rates of major CA and spontaneous abortions among prospective reported cases were consistent with published background rates for general population. Limitations: lack of a direct comparison group and possible selection bias.

PO2:24 | A population level analysis of the impact of SLE, RA, PSA and SPA and associated medication use on maternal and neonatal outcomes

Author
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Citation
Keeling, S., Kaul, P. A population level analysis of the impact of SLE, RA, PSA and SPA and associated medication use on maternal and neonatal outcomes.

Background

There are limited data on the differing effect of rheumatic diseases (RD), including rheumatoid arthritis (RA), psoriatic arthritis (PsA) and spondyloarthritis (SpA) and systemic lupus erythematosus (SLE), on maternal and neonatal outcomes [1,2].

We evaluated the impact of four rheumatic diseases (RA, SpA, PsA and SLE) on maternal and neonatal outcomes at a population level. We also examined medication use during pregnancy across these four groups.

Methods

A contemporary pregnancy cohort of 452,273 singleton live birth events of 307,590 women was assembled for the province of Alberta, Canada.

We identified 5 groups: (1) no rheumatic disease (no RD, n=449,933 pregnancies), (2) RA (n=1214), (3) PsA (n=177), (4) SpA (n=445) and SLE (n=504). We compared maternal and neonatal outcomes, comorbidity burden, and medication use among the 5 groups.

Results

Across all groups, mothers were predominantly ethnically Caucasian (>90%), residing in urban residences (>75%), and multiparous (> 58%). Maternal comorbidities including renal, vascular diseases and hypertension were most prevalent in SLE mothers. Rates of preclampsia, caesarean section and induction were highest in mothers with SLE. Pregnant women with SLE were the most likely to have preterm delivery (18.3%) and NICU admission at

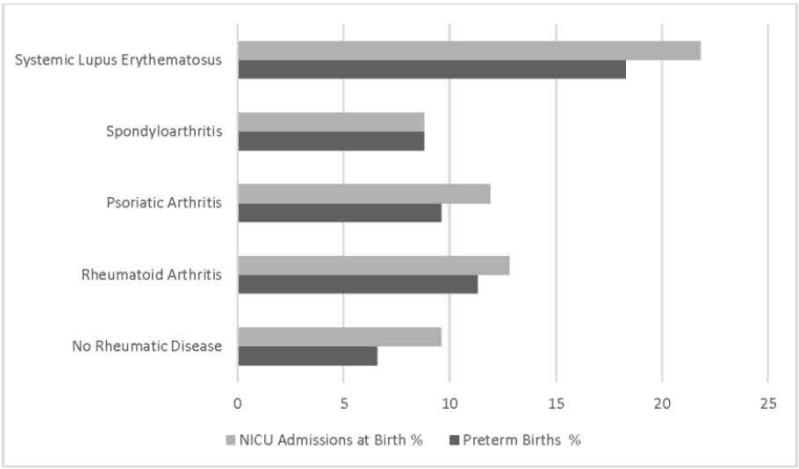


FIGURE 1
Percentage of preterm births and NICU admissions at birth for women with RA, PsA, SpA, and SLE compared to women with no RD.

TABLE 1: Rheumatic disease medications dispensed during pregnancy in patients with RA, PsA, SpA and SLE

Medication	RA	PsA	SpA	SLE
Total N	1214	177	445	504
Medications Dispensed for 28 days or more during pregnancy # (%)				
Prednisone	85 (7.0)	2 (1.1)	1 (0.2)	45 (8.9)
NSAIDs	63 (5.2)	4 (2.3)	14 (3.1)	14 (2.8)
Anti-malarials	220 (18.1)	5 (2.8)	2 (0.4)	164 (32.5)
Biologic Medications*	124 (10.2)	10 (5.6)	35 (7.9)	2 (0.4)
DMARDs**	111 (9.1)	3 (1.7)	4 (0.9)	26 (5.2)
Medications Dispensed for any length during pregnancy # (%)				
Prednisone	120 (9.9)	7 (4.0)	4 (0.9)	57 (11.3)
NSAIDs	117 (9.6)	5 (2.8)	30 (6.7)	29 (5.8)
Anti-malarials	224 (18.5)	5 (2.8)	2 (0.4)	165 (32.7)
Biologic Medications*	128 (10.5)	10 (5.6)	36 (8.1)	2 (0.4)
DMARDs**	115 (9.5)	4 (2.3)	4 (0.9)	27 (5.4)

(*Etanercept, infliximab, adalimumab, certolizumab, golimumab, abatacept, rituximab, tocilizumab, belimumab; **Sulfasalazine, cyclosporin, sodium aurothiomalate, mycophenolic acid, azathioprine, cyclophosphamide, methotrexate)

birth (21.8%) followed by RA (preterm delivery 11.3%, NICU admission at birth 12.8%) compared to those with PsA, SpA or no RD (Figure 1). Prednisone use for at least 28 days or any duration during pregnancy was highest amongst mothers with SLE (8.9%) followed by RA (7%) (Table 1). Antimalarial use for at least 28 days or any duration during pregnancy was highest in SLE mothers (32.7%) followed by RA mothers (18.5%) while biologic medications were used mostly in mothers with RA (10.5%).

Conclusions

Women with SLE had the worst maternal and neonatal outcomes and highest medication use followed by RA, with varying degrees for those with PsA and SpA compared to controls. The extent to which these outcomes are related to differing medication use, such as higher rates of prednisone and lower rates of antimalarials in mothers with SLE, and lower use of biologics in RA mothers, requires further exploration.

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PO2:25 | Therapeutic adherence during pregnancy surveyed in a single-center cohort of patients with rheumatic disease

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Citation

Rahmé, Z., Zen, M., Calligaro, A., Ross, T.D., Favaro, M., Iaccarino, L., Tonello, M., Zambon, A., Doria, A. Therapeutic adherence during pregnancy surveyed in a single-center cohort of patients with rheumatic disease.

Purpose
To define therapeutic adherence in pregnancy in a single-center cohort of patients with rheumatic diseases.

Methods
A web-based survey was administered to a cohort of patients with a rheumatic disease having had at least one pregnancy. Items investigated included therapy during pregnancy, reduction or discontinuation of therapy without medical consultation and patients' perceptions about counselling before and during pregnancy.

Clinical data were collected for further analysis.

Results
67 patients diagnosed with rheumatic disease having had a pregnancy between 1996 and 2023 participated.

Mean age at conception of the last pregnancy was 34±3.9 years, mean disease duration at conception was 11.4±6.5 years.

Participants' rheumatic diseases included SLE (n=42;62.7%), Sjogren's syndrome (n=6;9%), UCTD (n=6;9%), psoriatic arthritis (n=3;4.5%), juvenile arthritis (n=3;4.5%), rheumatoid arthritis (n=2;3%), vasculitis (n=2;3%), spondylarthritis (n=1;1.3%) and myositis (n=1;1.3%).

Therapies taken at the time of conception included prednisone (n=19;28.4%), hydroxychloroquine (n=46;68.7%) and immunosuppressant (n=25;37.3%) of which mostly biologic drugs (n=12;17.9%) and azathioprine (n=11;16.4%).

Therapies taken during pregnancy included hydroxychloroquine (n=48;17.9%), prednisone (n=19;28.4%), azathioprine (n=12;17.9%) and biologic drugs (n=6;9%).

64 patients (95.5%) declared full adherence to the prescribed therapy; 3 (4.5%) reported lowering the dosage of therapy during pregnancy without medical consultation; 1 (1.5%) reported discontinuing the medication. The given reasons were the feeling of wellness regarding their rheumatic disease and the fear of side effects for themselves and the fetus.

65 patients (97%) reported receiving adequate preconception counseling. All patients reported satisfaction with the counseling received during pregnancy.

The children of the patients examined by the cohort were all healthy at the time of birth.

Conclusions
Almost the whole cohort reported an adequate counseling in both the preconception and pregnancy phases and complete adherence to therapy.

The few cases of poor adherence were related to a perception of inadequate preconception counseling and reported fear of side effects of drugs on maternal and fetal health.

An adequate counseling, explaining details of therapy and the importance of taking prescribed medications correctly to avoid possible disease recurrence and subsequent maternal-fetal health complications, results in a high level of adherence, as shown by our study.

PO2:26 | Breaking down barriers: Exploring the safety and effectiveness of tnf inhibitors biosimilars during pregnancy

Author

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Citation

Fontana, G., Gozzoli, G.I., Lini, D., Nalli, C., Crisafulli, F., Filippini, M., Fredi, M., Lazzaroni, M.G., Moschetti, L., Semeraro, P., Taglietti, M., Andreoli, L., Tincani, A., Franceschini, F. Breaking down barriers: Exploring the safety and effectiveness of tnf inhibitors biosimilars during pregnancy.

Purpose

Tumor necrosis factor inhibitors biosimilars (TNFi-B) are a cost-effective treatment for autoimmune rheumatic diseases (ARDs). Despite the lack of safety signals to date, information about the use of TNFi-B during pregnancy is limited. More data are needed to support the same pattern of use during pregnancy as for TNFi originators.

Methods

This prospective study included 9 pregnant women affected by ARDs who were treated with TNFi-B during pregnancy. Data about drug adverse events, disease flares, comorbidities, obstetric and neonatal outcomes were collected.

Results

To date, 3 patients are still pregnant and no gestational complications have occurred. Analyzing the 6 patients who concluded their pregnancy, 5 were

TABLE 1: Features of the 6 patients included in the study

	n	%
Age (median (IQR))	32 (29.5 – 37.5)	
Ethnicity		
Caucasian	5	83%
South-American	1	17%
ARDs		
Behçet's Disease	2	33%
Psoriatic Arthritis	2	33%
Idiopathic Juvenile Arthritis	1	17%
Rheumatoid Arthritis	1	17%
Autoantibodies		
ANA[1]	1	17%
ENA[2]	1 (PM-Scl)	17%
aPL[3]	0	0%
aTG[4]/aTPO[5]	0	0%
Years since diagnosis (median (IQR))	7.5 (4.5 – 10.5)	
Comorbidities		
Asthma	1	17%
IBD[6]	1	17%
Obesity (Body Mass Index ≥30)	1	17%
Years of previous treatment with TNFi (median (IQR))	6 (6 – 8.5)	
TNFi-B		
Adalimumab	3	50%
Etanercept	3	50%
Drugs during pregnancy		
Corticosteroids (n)	3	50%
Cyclosporine (n)	1	17%
Heparin (n)	1	17%
Low Dose Acetylsalicylic Acid (n)	4	67%
Gestational week at the discontinuation of the biosimilar (median (IQR))	28.5 (21.25 –33.5)	
Disease flares during pregnancy	2	33%
Pregnancy/Obstetric complications (n)	3	50%
Miscarriage	0	0%
Gestational diabetes (n)	2	33%
Pre-term delivery (n)	1	17%
SGA[7]	1	17%
Gestational weeks at delivery (median (IQR))	38.3 (37.2 – 39.3)	
Type of delivery		
Spontaneous vaginal delivery (n)	5	83%
Elective cesarean section (n)	1	17%
Birthweight, g (median (IQR))	2970 (2601.3 - 3155)	
Breastfeeding (n)	3	50%
Restarting biosimilar after delivery (n)	6	100%

Abbreviations: 1 ANA: antinuclear antibodies; 2 ENA: extractable nuclear antigen antibodies; 3 aPL: antiphospholipid antibodies; 4 aTG: anti-thyroglobulin antibodies; 5 aTPO: anti-thyroid peroxidase antibodies, 6 IBD: inflammatory bowel disease, 7 SGA: small for gestational age

primigravida and, at conception, all women were in clinical remission. 5 of them were already on TNFi-B treatment (median treatment duration 5 years, IQR 3.5-5.75). A woman started etanercept for the first time during the first trimester because of a flare of arthritis. Another woman developed a flare during the second trimester after discontinuation of adalimumab. Flares were mild and were treated with medium-low dose corticosteroids in both patients. 3 patients on adalimumab stopped it during the second trimester and 3 on etanercept during the third: the median gestational week of TNFi-B withdrawal was 28.5 (IQR 21.25 –33.5). Two pregnancy complications occurred: 2 women developed gestational diabetes, both were under corticosteroid treatment, one had obesity. Five patients delivered at term, while the one who developed arthritis flare had a preterm birth at 35 weeks (median 37.5, IQR 37-38.5). Newborns' median weight was 2970 g (IQR 2601.3-3155) and no neonatal complications occurred, except for a small for gestational age (SGA) baby born at 35 weeks of gestation with birth weight 2060 g. All women restarted TNFi-B as planned within 6 months after delivery. Features of these 6 patients are summarized in Table 1.

Conclusions

TNFi-B use during pregnancy is safe. No adverse pregnancy outcomes, congenital abnormalities or perinatal complications occurred. A delayed start or discontinuation of TNFi-B seems to be associated with childbirth at an earlier gestation and disease flares, but larger studies are needed to better define these results.

PO3:27 | Mixed connective tissue disease and course of pregnancy - Results from the nationwide pregnancy register revnatus

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Citation

Koksvik, H., Jakobsen, B., Bjorngaard, H., Pedersen, T., Wallenius, M. Mixed connective tissue disease and course of pregnancy - Results from the nationwide pregnancy register revnatus.

Purpose

Mixed connective tissue disease (MCTD) is a complex and multisystemic disorder of unknown etiology. MCTD is classified by the presence of antibodies to U1-RNP and associated with clinical symptoms like "puffy hands", Raynaud's phenomenon, arthritis, synovitis, sclerodactyly/acrosclerosis and/or myositis. It is commonly diagnosed in women of reproductive age. Pregnancy outcomes are reported in previous studies with discrepancies in the rate of pregnancy-related complications.

The objective of the study is to describe the course of pregnancy in patients with MCTD.

Methods

We prospectively collected data on pregnancy outcome in women with MCTD through the nationwide Norwegian quality registry on pregnancy and rheumatic diseases (RevNatus) from 2016-2022. All women were diagnosed with ICD-10 code M35.1.

48 pregnancies in 38 women were recorded. One woman had twin birth.

Results

Mean maternal age at first trimester was 31 years, (SD= 4,3). Mean disease duration was seven years (SD= 4,2). One patient had BMI > 30 at first trimester, and one patient had diabetes. Median gestational age at delivery was 37 weeks (range 25-41). No stillbirths were recorded. Two pregnancies were not planned. 69% of the women were in clinical remission at inclusion.

TABLE 1

	At enrollment (N=48)	1. trimester (N=37)	2.trimester (N=35)	3.trimester (N=39)	delivery (N=48)	6 weeks post partum (N=48)
CRP in mg/l mean (SD)	5 (8)	4 (10)	7 (9)	3 (2)		3 (4)
CRP >5mg/l n (%)	8 (17)	4 (11)	12 (35)	3 (8)		2 (5)
patient global (VAS 0-100), mean (SD)	30 (28)	32 (32)	29 (27)	40 (28)		22 (22)
patient pain (VAS 0-100), mean (SD)	21 (21)	19 (22)	22 (23)	25 (22)		19 (22)
patient fatigue (VAS 0-100), mean (SD)	46 (28)	53 (31)	49 (31)	45 (27)		34 (24)
Use of Hydroxykloroquin n (%)	32 (67)	30 (79)	26 (74)	30 (77)		31 (65)
Miscarriages <week 12, n					4	
Birth weight (gram) of singelton, mean					2995	
Birth weight (gram) of singelton born at term, mean					3265	
Preeclampsia n (%)					8 (17)	
HELLP n (%)					4 (8)	
Vaginal delivery n (%)					22 (46)	
Caesarean section planned, n (%)					8 (17)	
Caesarean section acute, n (%)					12 (26)	

Conclusion

Most patients with MCTD in this cohort had a favourable course and outcome of pregnancy and most pregnancies were planned. Four patients were diagnosed with HELLP syndrome and we observed an increased rate of preeclampsia compared to the frequency reported in the Norwegian birth registry (NFR) (17% vs 4%) and we found lower mean birth weight in gram compared to NFR (2995 vs 3480). Hydroxykloroquin was used by a majority (>70%) of the women throughout pregnancy and might have contributed to the favorable course and outcome. Analysis on the association to specific risk factors predicting adverse pregnancy outcomes should be done in the future.

PO3:28 | Pregnancy course in a cohort of women with myositis - Results from revnatus

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Citation
Jakobsen, B., Bjørngaard, H., Koksvik, H.S., Pedersen, T.T., Wallenius, M. Pregnancy course in a cohort of women with myositis - Results from revnatus.

Purpose

Myositis is a rare autoimmune disease characterized by proximal and symmetrical muscle weakness and inflammatory infiltrates on muscle biopsy, and may affect women in reproductive age. Well-controlled disease at time of conception seems to give better outcome for the mother and the fetus [1, 2]. Active disease before and during pregnancy has been associated with preterm birth and infant small for gestational age [1, 2]. The objective of the study was to describe the course of pregnancy in patients with myositis.

Methods

We prospectively collected data on pregnancy in women with myositis in the nationwide Norwegian quality registry RevNatus. ICD-10 codes: ICD-10 M33.0 (n=7), M33.1 (n=2), M33.2 (n=1), M33.9 (n=3). During 2016-2022, 13 pregnancies in eleven women were included. Health professionals categorized disease activity as: debut, minor relapse, major relapse, persistent disease or remission.

Results

Median disease duration was 13 years (range 3-26), and median age at conception was 29 years (range 25-43). Seven women had juvenile myositis. Two pregnancies ended in spontaneous abortions, one in 1st trimester and one in 2nd trimester. One stillbirth occurred. Ten pregnancies ended with live birth at median pregnancy week 39 (range 37-41) and a median birth weight of 3573 gram (range 2765-4750). None of the women experienced preeclampsia or HELLP. Three women was positive for ANA. Median CRP in second trimester was 2.5 (range 0-7). Among ten women with live births, eight were in remission, and two women had persistent disease in second

TABLE 1

Patient #	Pregnancy #	Maternal age at conception	Disease duration years	Medication during pregnancy	Disease activity 2nd trimester	Gestational age at delivery	Infant birth weight (gram)	Delivery mode
A	1	29	25	none	remission	38	3355	standard vaginal delivery
B	2	34	7	azathioprine	persistent disease	39	3725	standard vaginal delivery
C	3	29	15	azathioprine				spontaneous abortion week 7
C	4	30	16	azathioprine	remission	37	4010	operational vaginal delivery
D	5	35	3	ciclosporin + prednisolone 5mg	persistent disease	40	3000	standard vaginal delivery
E	6	28	13	none	remission	37	2765	operational vaginal delivery
F	7	25	10	azathioprine + hydroxychloroquine	remission	41	4085	standard vaginal delivery
F	8	27	12	azathioprine + hydroxychloroquine	remission	41	3815	standard vaginal delivery
G	9	36	13	prednisolone 5mg				spontaneous abortion > week 12
H	10	43	5	azathioprine prednisolone 5mg	remission	37	3140	elective sectio
I	11	36	26	none	remission	41	4750	acute sectio
J	12	32	15	hydroxychloroquine	remission	27		stillbirth
K	13	26	13	none	remission	39	3420	standard vaginal delivery

trimester, defined by rheumatologist. Eight women used DMARDs in pregnancy, and two women used prednisolone 5 mg throughout pregnancy. See table 1.

Conclusion

We did not observe disease flare during pregnancy. One pregnancy ended in early spontaneous abortion, one in late spontaneous abortion and one in stillbirth. Data are sparse, and larger cohorts are necessary to evaluate possible risk factors.

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PO3:29 | Idiopathic inflammatory myopathies in pregnancy: A case series

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Citation
Tschäppät, C., Zbinden, A., Raio, L., Förger, F. Idiopathic inflammatory myopathies in pregnancy: A case series.

Idiopathic inflammatory myopathies (IIM) is a heterogeneous group of rare autoimmune diseases that is rarely studied in pregnancy. We here report disease course and obstetric outcomes of six women with different subtypes of IIM who were followed at the University Hospital of Bern. Table 1 shows patients' characteristics, autoantibodies, medication, and disease activity during and after pregnancy and obstetric outcome of six cases with IIM.

In two women, IIM was diagnosed during the first trimester, one with an overlap of PM/Scl-dermatomyositis (DM) and mixed connective tissue diseases, the other with NXP2-DM. In both cases with new-onset,

TABLE 1: Patients' characteristics and feto-maternal pregnancy outcomes

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Maternal characteristics						
Ethnicity	African	European	Asian	European	European	European
Age at pregnancy, years	28	38	38	35	32	29
Gravidity	3	1	1	1	1	1
Comorbidities	Vit D def.	Vit D def., active smoker	Vit D def., Hashimoto	-	Melanoma	-
Disease characteristics						
Diagnosis	Overlap DM MCTD	DM	ASyS	Overlap DM CTD	Overlap DM MCTD	Overlap DM MCTD
Disease duration, years	New onset	New onset	1	12	3	14
Autoantibodies	PM/Scl-100	NXP2	Jo-1 SS-A (Ro 60, 52)	NXP2 dsDNA	RNP	RNP
Clinical features	Myalgia, weakness, mechanic's hands, raynaud's, arthritis	Myalgia, weakness with tetraparesis, peripheral edema, rash, calcinosis	Myalgia, arthritis, mechanic's hands	Myalgia, weakness	Myalgia, arthritis, rash	Myalgia, arthritis, rash
Organ involvement	Myocarditis	Myocarditis	ILD	-	-	-
Disease activity						
During pregnancy	active	active	inactive	inactive	mild	inactive
Postpartum	active	active	active	active	mild	inactive
Treatment						
Pre-conception	-	-	CsA	MTX	HCQ	HCQ
During pregnancy	GC, HCQ, AZA, IVIG	GC, HCQ, AZA, IVIG, RTX, CsA	GC, RTX, CsA	AZA	HCQ, ASA	HCQ
Postpartum	GC, HCQ, AZA, IVIG	GC, HCQ, AZA, IVIG, RTX, CsA	GC, RTX	RTX, MTX	HCQ	HCQ
Pregnancy outcomes						
Maternal complications	-	gestational HT, hypothyroidism, anemia	-	gestational diabetes	-	-
Delivery mode	VD	C-section	VD	C-section	C-section	VD
Infant's outcomes:						
Gestational age at delivery, week	37+4	36+4	39+2	38+2	39+2	40+5
Birth weight, percentile	17.6	2.2	32.0;	49.5	33.0	10.9
Birth weight, g	2645	2040	3270	3300	3155	2980
Apgar, score at 1-5-10 min	1-3-7	7-9-9	7-8-10	9-9-10	9-10-10	3-5-9
Fetal/neonatal complications	SGA	IUGR, SGA, CM	-	-	-	SGA

Abbreviations: DM = Dermatomyositis, MCTD = Mixed connective tissue disease, ASys Antisynthetase syndrome, CTD= connective tissue disease, ILD= interstitial lung disease, Vit D def. = Vitamin D deficiency, Hashimoto = Hashimoto Thyroiditis, CsA = cyclosporine A, MTX = methotrexate, AZA = azathioprine, HCQ = hydroxychloroquine, GC = corticosteroid bolus, oral. VD = Vaginal delivery, C-section = elective Cesarean section, HT = Hypertension, IUGR = Intrauterine growth restriction, SGA = Small for gestational age, CM: congenital malformations

IIM during pregnancy, disease activity and disease progression was difficult to control despite an extensive pregnancy-compatible combination therapy. In four patients with IIM (1 antisynthetase syndrome, 3 overlap of DM and connective tissue diseases), pregnancy was planned in a quiescent phase after pre-pregnancy counselling. In these cases, IIM remained stable or inactive throughout gestation. None of the patients had preeclampsia, but one had gestational hypertension and another gestational diabetes. During the postpartum period, four of the six patients experienced a disease flare, the most severe flares occurred in the two women with active disease during pregnancy. All pregnancies ended with live births, one neonate was born preterm at week 36+4. There were three infants born small for gestational age, two of whom from mothers with active disease during pregnancy. The infant born to the patient with new-onset of NXP2-DM during pregnancy had multiple congenital anomalies.

Our case series shows that cases with new-onset IIM during pregnancy are associated with poor maternal and foetal outcomes. By contrast, in well-controlled IIM, beneficial outcomes are possible.

PO3:30 | Pregnancy in sjögren syndrome: A single center experience

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Citation
Cascarano, G.,_Zucchi., Monacci, F., Elefante, E., Baldini, C., Ferro, F., Ietto, C., Gori, S., Gelsi, V., Strigini, F., Tani, C., Mosca, M. Pregnancy in sjögren syndrome: A single center experience.

Purpose

Sjögren-syndrome(SS) is an autoimmune disease characterized by exocrine gland inflammation and potential extra-glandular involvement. SS primarily affects women, potentially impacting reproductive health. Although congenital-heart-block(CHB) is well described in babies born to anti-Ro/anti-La positive mothers, there is limited literature on the pregnancy impact on the mother's health. Our study aimed to depict pregnancy-outcomes and flare risks in a cohort of primary-SS patients prospectively monitored at a single-center.

Methods

Consecutive primary-SS patients meeting the ACR/EULAR2016 criteria were enrolled upon pregnancy detection and prospectively followed at our pregnancy-clinic at 4-week intervals. Patients with anti-SSA and/or anti-SSB antibodies were monitored for PR-interval and received echocardiographic monitoring every two weeks from 16 to 26 weeks. At the first pregnancy visit, we collected demographic/clinical data, disease duration, cumulative organ involvement and treatment history. Disease activity status was assessed at each visit, with flares defined as new/worsening symptoms requiring therapeutic modifications or hospitalization. Obstetric complications included: preeclampsia, premature membranes rupture <37gestational-weeks, SGA, IUGR, intrauterine fetal death, gestational diabetes, preterm delivery <34gestational-weeks and birthweight <2500grams.

Results

The study included 48 pregnancies in 41SS patients. At conception, 21 patients (44%) had history of extra-glandular involvement and 4 patients had an active disease. Pregnancy treatments are reported in figure.

Therapies during pregnancy	
Glucocorticoids (%) Median dose of prednisone	12 (25.0) 5 mg/day
Hydroxychloroquine (%)	20 (41.7)
Azathioprine (%)	1 (2.1)
Cyclosporin (%)	0 (0.0)
IVIG (%)	1 (2.1)
LMWH (%)	4 (8.3)
LDASA (%)	10 (20.8)

FIGURE 1

During pregnancy/puerperium, 7 patients(15%) experienced disease flare-ups, including 3 cases of purpura and 4 cases of parotid-gland-swelling. The mean gestational age at flare was 21 weeks: 5occurred in the second-quarter and the remaining 2 in the first and third-quarters, respectively. Miscarriage occurred in 4 pregnancies (8%), while 44(92%) resulted in live births. Of them, 1 case of perinatal-death occurred in a newborn with CHB. Median gestational age at delivery was 39 weeks and in 3 cases(6%) a preterm delivery was observed. Obstetric complications occurred in 12(25%) cases, including 1 case each of preeclampsia (2%) and IUGR(2%). No significant correlation was observed between the development of obstetric complications or disease flare and history of extra-glandular disease involvement at conception.

Conclusion

These data confirm good pregnancy-outcomes for SS-patients in remission or with well-controlled disease at conception, with no apparent impact on

pregnancy-outcomes from extra-glandular involvement. Due to obstetric complications risks potentially related to autoantibody-profile and disease-flare-risk, close multidisciplinary monitoring and necessary therapeutic interventions are recommended for SS-patients during pregnancy to enhance pregnancy-outcomes.

PO3:31 | Pregnancy outcomes in patients with sjögren's syndrome – Experience of a tertiary referral centre

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Citation

Tomicevic, L.S., Bakula, M., Anic, B. Pregnancy outcomes in patients with sjögren's syndrome – Experience of a tertiary referral centre.

Purpose

Data regarding the impact of Sjögren's syndrome (SS) on obstetric outcomes are scarce and inconclusive. There are no uniform guidelines for pregnancy management in SS. Purpose of this study is to evaluate the impact of SS on pregnancy and neonatal outcomes and to assess the appropriate management during pregnancy.

Methods

This retrospective observational study included 50 patients with primary SS (pSS), followed at tertiary referral center between 1992 and 2022. Inclusion criteria were diagnosis of pSS by the American European Consensus Criteria (AECC) for pSS with SSA and/or SSB antibodies. Exclusion criteria were another systemic autoimmune disease, positive anti-dsDNA antibodies and antiphospholipid antibodies. Pregnancies and neonatal outcomes were evaluated and the impact of treatment on pregnancy outcomes was assessed.

Results

50 patients were included in the study with a total of 86 pregnancies. Mean age at diagnosis was 47. Mean age at pregnancy was 32. A total of 79 (91,8%) pregnancies occurred before, 5 pregnancies (5,8%) after the diagnosis of pSS and 2 (2,3%) patients were diagnosed during pregnancy. The incidence

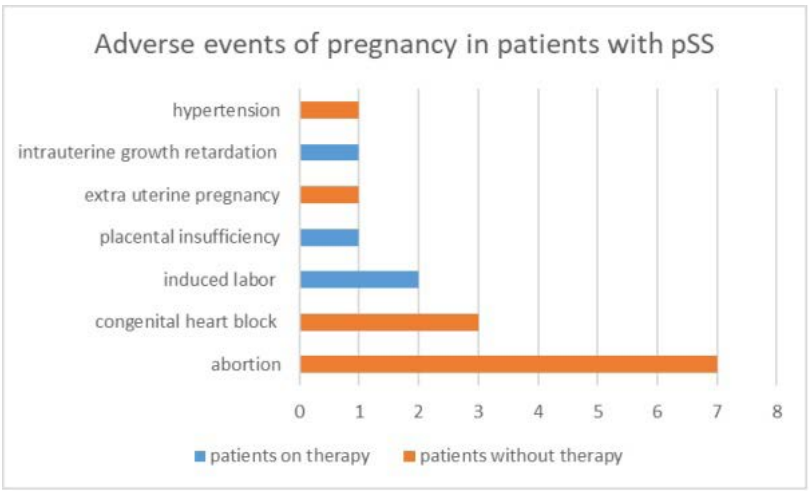


FIGURE 1
Correlation between the Perinatal Grief Scale and the Resilience Scale.

of anti-Ro/SSA and anti-La/SSB antibodies was 100% and 66%, respectively. We found 16 (18,6%) events: 7 (8,1%) abortions occurred in 5 (10%) patients, one induced labor in 28th week of gestation due to fetal malformations and another in 35th week of gestation due to mors fetus in utero. Both of these patients were on hydroxychloroquine. There was one case of extrauterine pregnancy, one placental insufficiency, one intrauterine growth retardation and one hypertension. Three (3,5%) pregnancies were complicated by congenital heart block (CHB), every mother had positive SSA and SSB antibodies prior to pregnancy, none of them were on immunosuppressive therapy. We found clear correlation of pregnancy outcomes and therapy. The patients with established pSS prior to pregnancy were carefully monitored.

Conclusions

Data on pregnancy outcomes in pSS are conflicting. Excluding abortion, CHB was the most critical condition. Compared to general population, our patients showed higher incidence of complications. This is largely due to late diagnosis (after pregnancy). We emphasize the importance of multidisciplinary approach and pregnancy planning as well as tailored therapy in patients with SS.

PO3:32 | Treatment of juvenile polymyositis with rituximab during pregnancy - Case report

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Citation
Ranzolin, A., Duarte, A.L., Cavalcanti, A., Alves, M.F., Rocha, J.L. Treatment of juvenile polymyositis with rituximab during pregnancy - Case report.

Purpose
Present a case of rituximab (RTX) use to treat active polymyositis during pregnancy.

Methods
Data were taken from the medical record.

Results
The patient was diagnosed with Juvenile Polymyositis (JPM) at 14years-old (proximal muscle weakness, high muscle enzymes, ENM, MRI and muscle biopsy with myopathic pattern). The patient received pulsetherapy/oral corticosteroid (CE) and methotrexate, with good clinical/laboratory evolution. After 2 years, she presented relapse and association with RTX was indicated, with good response. After 20 months of treatment, she lost access to medication and there was a recurrence of the disease. She failed to respond to: azathioprine, new pulsetherapy CE, IV immunoglobulin,

mycophenolate mofetil and cyclosporine (CsA). At 19 years-old, it was possible to prescribe a new cycle of RTX. Before initiating the infusions, a 6-week gestation was identified. After medical team discussion and patient's consent, RTX treatment was restart (infusion at weeks 7 and 9). Prednisone and CsA was maintained until 20 weeks, when patient suspended it by herself. There was improvement in muscle weakness and enzyme levels. At 35 weeks and six days of gestational age, due to premature rupture of membranes associated with candidiasis vulvovaginitis, the pregnancy was interrupted by cesarean section. The patient remained hospitalized due to difficulty in the descent of physiological lochia. The newborn had low birth weight (2305g) and length of 46cm, remained hospitalized for week due to physiological constipation. There were no other complications with the patient or her son. In the puerperium, she maintained improvement of JPM and was treated with another cycle of RTX about two months after delivery. Despite improvement in symptoms, the enzymes were still high. Association with CsA was chosen with good progress. The baby had no infectious episodes or hospitalizations.

Conclusions

The use of RTX during pregnancy has also been reported in other diseases with varying outcomes. To the best of our knowledge, this is the first case of RTX use during pregnancy for JPM. Our patient had a good response to treatment and, despite the prematurity and low weight of the baby, both had good long-term evolution.

PO3:34 | A case of newly diagnosed sjogren's syndrome in pregnancy presenting with distal renal tubular acidosis and fetal congenital complete heart block

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Citation
Thain, S., Tan, L.K. A case of newly diagnosed sjogren's syndrome in pregnancy presenting with distal renal tubular acidosis and fetal congenital complete heart block.

Purpose

Sjogren's syndrome with its associated antibodies are associated with an increased risk of complications in pregnancy such as autoimmune congenital heart block in the fetus. Its most common presentation is that of dryness involving the eyes and mouth due to inflammation and resultant pathology of the lacrimal and salivary glands. We present a case of Sjogren's syndrome with an atypical presentation that was first diagnosed in pregnancy.

Methods and Results

A 41 year old woman had a routine ultrasound screening at 20 weeks of pregnancy which diagnosed her fetus with complete heart block. Anti-extractable nuclear antigens (anti-ENA) profile performed as part of the workup for complete heart block was positive for both anti-Ro/SSA and

anti-La/SSB antibodies. The fetal medicine team commenced her on oral salbutamol 10mg once daily for the purpose of increasing the fetal heart rate as well as oral dexamethasone 8mg once daily to slow progression of the fetal cardiac condition. Unfortunately, she developed symptomatic severe refractory hypokalemia with rhabdomyolysis a day after initiation of these medications. Renal evaluation revealed bilateral nephrocalcinosis and distal renal tubular acidosis, which in combination with the positive anti-Ro and anti-La antibodies clinched the diagnosis of primary Sjogren's syndrome. It was postulated that the hypokalemia was precipitated by dexamethasone. She was treated with sodium bicarbonate and potassium replacement and recovered well, eventually delivering a well grown baby boy at term who underwent pacemaker insertion at Day 7 of life.

Conclusion

Sjogren's syndrome is a systemic rheumatic disease that most often presents with dry mouth and eyes, but can also present more atypically with internal organ involvement. As it can present for the first time in pregnancy, a high index of suspicion is crucial to reaching the diagnosis in women with positive anti-Ro and anti-La antibodies. A multidisciplinary approach with the inclusion of maternal medicine specialists should be undertaken for these women with connective tissue disorders, with judicious use of medications that could potentially induce complications in them.

PO3:35 | Assessment of fertility and sexual dysfunction in women with scleroderma: A systematic review of the literature

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Citation

Matys, V., Briante, M., Galli, C., Mandosi, C., Merlino, L., Prete, F.D., Priori, R., Piccioni, M.G. Assessment of fertility and sexual dysfunction in women with scleroderma: A systematic review of the literature.

Purpose
The aim of this work is to review the existing literature regarding sexual and reproductive function of women affected by scleroderma to establish the impact of the disease on the gynecological-obstetrical field, and to investigate the mechanisms through which it acts.

Methods
A systematic search has been conducted by means of PubMed database, Cochrane, Google Scholar, until April 2023 by the keywords ''scleroderma'' or ''systemic sclerosis'', ''fertility'', "sexual function" "miscarriage". Retrospective and prospective clinical studies, review articles and original articles of interest were analyzed and independently screened by two investigators.

Results
Sexual dysfunction has been described in most of the studies. This could be related to organic manifestations of the disease such as dryness and dyspareunia or it can be ascribable to the psychosocial impact of the scleroderma on body and facial appearance, which does not encourage women to have social and sexual relationships. There is, instead, conflicting evidence in the literature regarding the impact of scleroderma on fertility. Before the 1980s there were frequent references to the rarity of the pregnancies in patients who had established scleroderma. This could be linked to the satisfied reproductive desire before the onset of the scleroderma in that historical period or to the fact that pregnancy was labeled as high-risk for both fetal and maternal complications, leading to counsel against pregnancy in most patients. More recently, the evidence supporting infertility is inconsistent, either before or after the onset of the disease, even if women affected by scleroderma seem to be at higher risk of miscarriages than the ones in the healthy population. There is no certain theory on how the disease may interfere with reproductive function, but a possible linkage can be detected in the existence of a pro-inflammatory milieu which can impair the ovarian reserve.

Conclusion

Women affected by scleroderma should be followed-up by a multidisciplinary team to prevent sexual dysfunction. Although there is no consensus on the impact of scleroderma on fertility decrease, these patients should be provided with adequate pre-conception counseling and a strict follow-up of the pregnancy in high-risk pregnancy units.

PO3:37 | Pregnancy and myositis – beyond disease activity

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Citation

Nagy-Vincze, M., Balkay, L., Griger, Z. Pregnancy and myositis – beyond disease activity.

Purpose

Pregnancy outcome in patients suffering from systemic lupus erythematosus and antiphospholipid syndrome is well understood and several therapeutic guidelines have been published. In other autoimmune diseases, probably due to later onset, there is a lack of consensus guideline for planning and managing patients' pregnancy. In the theme of myositis and pregnancy previously published articles stated that activity of maternal disease could lead to worse pregnancy outcome. A former multicentre study suggested that anti-Jo1 antibody positivity and joint involvement could distinguish a more vulnerable group considering pregnancy complications.

Methods
Based on retrospective review of UNIDEB myositis cohort our aim was to find prognostic factors among clinical symptoms and autoantibody profile for identifying a high-risk group for unfavourable pregnancy outcome.

Results
Reviewing clinical data of overall 763 patients (542 women and 221 men) revealed that 5.2% (28/542) of female patients had pregnancies in the same time or after myositis onset. 71.4% (20/28) suffered from Polymyositis (PM) and 28.6% (8/28) from Dermatomyositis (DM). Their mean age at myositis diagnosis was 25.28 years and the average time between myositis diagnosis and first pregnancy was 55.4 months. Maternal complications were preeclampsia in one case and pregnancy induced myositis in 25% (7/28) of cases. 28 patients reported overall 60 pregnancies, where multiple pregnancies occurred in 57% (16/28). Early or late foetal loss was detected in 41,7 % of the pregnancies (25/60), stillbirth in 18,3 % (11/60) of labours. Although late foetal loss was observed mainly due to placental insufficiency in patients with anti-Jo1 positivity and complications seemed more frequent in PM form, logistic regression analysis only confirmed that multiple pregnancies could be independent risk factor of foetal (OR=4.19; CI:[1.39, 12.69]; p=0.0112) and interstitial lung disease of maternal complications (OR: 12; 95% CI: 1.48-97.18; p: 0.02).

Conclusion
Beyond disease activity internal organ involvement and number of pregnancies could influence pregnancy outcome in myositis patients. Although statistically not proven, autoantibody profile could also have an essential role. Patients' family planning should have to be well organised and counselled by myositis experts. Prospective, multicentre collaborations needed to precisely identify high-risk groups and state managing guidelines.

PO3:38 | Acute, severe onset of dermatomyositis in pregnancy: Multimodal and multidisciplinary management associated with favourable obstetric outcome

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Citation
Buckland, A., Brusch, A., O'Neill, M., Needham, M., O'Gorman, T., McQuillan, A., Lim, K.P., Sadler, G.M., Graham, D.F. Acute, severe onset of dermatomyositis in pregnancy: Multimodal and multidisciplinary management associated with favourable obstetric outcome.

Onset of dermatomyositis (DM) in pregnancy is rare and rarer with a favourable obstetric outcome. We contribute to the literature with this report of a woman diagnosed with DM in pregnancy. She responded to glucocorticoid and immunoglobulin with maintenance cyclosporin and delivered a healthy, term baby.

The case is described in detail with discussion regarding pathophysiology and treatment implications.

A 32-year-old woman in the twelfth week of her second pregnancy presented with rapid onset over days of difficulty walking and rash. She had a respiratory tract infection one month prior. She had a history of hereditary spherocytosis, common variable immunodeficiency with a variant of uncertain significance in STAT3. Her previous pregnancy was complicated by intrauterine growth restriction with an elective caesarean delivery for breech presentation at term.

Examination demonstrated severe proximal myopathy with bulbar involvement. She had multiple dermatomyositis related rashes including flagellate erythema.

Initial creatinine kinase was 2010 IU/L. Myositis antibodies were negative. IgG was 4.6g/L (ref 5.8 – 13.7g/L) with reduced IgA and normal IgM. MRI thighs showed myositis. Skin biopsy histopathology was consistent with dermatomyositis. Pulmonary physiology confirmed reduced maximal inspiratory and expiratory pressures. Malignancy screen, modified for pregnancy, was negative.

Induction therapy for acute presentation of dermatomyositis comprised intravenous methylprednisolone and immunoglobulin (2g/kg over 5 days). Maintenance comprised monthly immunoglobulin (1mg per kg) and cyclosporin (75mg BD) and tapering dose of oral prednisolone to 10mg daily by the third trimester, without relapse. She had steroid complications of acneiform rash and diabetes requiring insulin. Her pregnancy was complicated by COVID-19 infection at 19 weeks gestation, treated with remdesivir.

Within four weeks of commencing treatment her creatinine kinase normalised and the rash improved. She had mild residual weakness in hip flexion though could again ascend stairs. She delivered a healthy baby at term via elective caesarian section, weighing 2800g. She remains well post-partum on maintenance therapy.

Dermatomyositis onset in early pregnancy is rare and carries risk of severe obstetric complications. In this case there was rapid clinical response to IVIG, steroids and cyclosporin with good maternal and obstetric outcomes.

PO4:39 | A population-based study on cesarean section in women with juvenile idiopathic arthritis

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Citation
Skorpen, C.G., Lydersen, S., Salvesen, K., Wallenius, M. A population-based study on cesarean section in women with juvenile idiopathic arthritis.

Purpose

The literature on delivery methods in women with juvenile idiopathic arthritis (JIA) is insufficient. Active inflammation is a risk factor for cesarean section (CS) in other arthritic diseases. A CS entails a higher risk for complications than vaginal delivery and a restricted physical activity

the first weeks after birth. The purpose of this study was to explore a possible association of inflammatory active disease and the proportion of CS in women with JIA.

Methods

Data from the Norwegian nationwide observational register RevNatus were linked with data from the Medical Birth Registry of Norway (MBRN).

TABLE 1: Characteristics of patient group and population controls, reported as n (%) unless specified as mean (SD)

Characteristic	Population controls	JIA	p-value [α]
Singleton births 2010 – 2019	575 798	196	
Maternal age (years), mean (SD)	30.6 (5.1)	29.7 (4.7)	**0.009**
≥35 years	115 077 (20.0)	25 (12.8)	
missing	0	0	
Nullipara	244 354 (42.4)	97 (49.5)	0.054
missing	0	0	
Smoking in pregnancy	34 237 (6.7)	8 (4.3)	0.24
missing	67 663	10	
BMI first trimester, mean (SD)	24.4 (4.8)	24.3 (4.5)	0.90
≥25.0	138056 (34.5)	53 (34.4)	1.0
≥30.0	49167 (12.3)	20 (13.0)	0.89
missing	176 090		
Previous CS	55 992 (9.7)	25 (12.8)	0.19
missing	0	0	
Diabetes[β]	25924 (4.5)	9 (4.6)	1.0
missing	0	0	
ART	20121 (3.5)	9 (4.6)	0.52
missing	0	0	

JIA = juvenile idiopathic arthritis, BMI = body mass index, CS = cesarean section, ART = assisted reproductive technology
[α] p-value for patient group compared to population controls, [β] pregestational or gestational

Cases comprised singleton births in women with JIA (n= 196) included in RevNatus 2010 to 2019. Singleton births registered in MBRN during the same period of time and excluding mothers with rheumatic inflammatory diseases (n = 575 798), served as population controls. Disease activity was assessed using Disease Activity Score with CRP (DAS28-CRP-3). We defined inactive JIA as DAS28-CRP-3 < 2.6 and active JIA as DAS28-CRP-3 2.6 or above.

Results

CS was more frequent in women with JIA (20.4%) than in population controls (15.6%) and occurred most frequently in inflammatory active JIA (30.0%). Women with JIA had similar risk for elective CS (risk difference 1.1%, 95% CI-1.7 to 5.4) and higher risk for emergency CS (risk difference 3.8%, 95% CI -0.4 to 9.3) compared with population controls. Active disease increased the risk for emergency CS (risk difference 14.0%, 95% CI 4.3 to 27.4).

Conclusion

Women with active JIA had higher risk for emergency CS compared with population controls.

PO4:40 | Multidimensional poverty: A reality in pregnant women with rheumatic diseases

Author
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Citation
Nieto, F.R.A., Trujillo, M.E.C., Gonzalez, A.C., Serna, K.M.L., Mejia, A.D.M., Rivera, A.M.S., Taylor, C.M.S., Barbosa, L.P., Delgado, D.A.G. Multidimensional poverty: A reality in pregnant women with rheumatic diseases.

Purpose

Having an official poverty index helps us know the social context of the Mexican population and the type of attention required. The CONEVAL's Social Deprivation Index (SDI) is the measurement used in Mexico to assess whether a person is living in poverty.

A person is considered to be living in poverty when they have at least one social deprivation (SD) and their income is insufficient to acquire the goods and services necessary to satisfy their food and non-food needs. A person is in extreme poverty when she or he has three or more deficiencies within the SDI and is also below the minimum well-being line (155.73 USD). On the other hand, people can be vulnerable due to social deprivations (>1 SD) but their income is higher than the well-being line. We aim to identify the SD from the SDI of pregnant with autoimmune rheumatic diseases (ARDs).

Methods

A descriptive, cross-sectional, retrospective study was carried out at the Pregnancy and Reproductive Health Clinic for Rheumatic Diseases (CEER) from the University Hospital "Dr. José Eleuterio González", in Mexico. The data of pregnant patients was collected from the clinical record from 2019 to 2022. We classified them according to the SDI and poverty definitions from the CONEVAL. The sociodemographic and clinical characteristics are presented as frequencies, percentages or interquartile ranges (IQR).

Results

A total of 46 pregnant women with ARDs were included, with a median age of 26. Diagnosis and sociodemographic characteristics are in Table 1.

TABLE 1: Sociodemographic and diagnosis data

	n= 46
Age, median (IQR)	26 (22.00 – 31.25)
Occupation, n (%)	
Home	28 (60.9)
Employee	13 (28.3)
Student	5 (10.9)
Education, n (%)	
Elementary school	3 (34.8)
Middle school	16 (34.8)
High school	10 (21.7)
Bachelor's degree or more	17 (37)
Rheumatic diagnosis, n (%)	
Rheumatoid arthritis	23 (50)
Systemic lupus erythematosus	13 (28.3)
Antiphospholipid syndrome	4 (8.7)
Dermatomyositis	3. (6.5)
Others	3 (6.5)
Number of people living in house, median (IQR)	4 (3.00 – 5.25)
Monthly income, median (IQR)	452.40 USD (331.03 – 678.60)

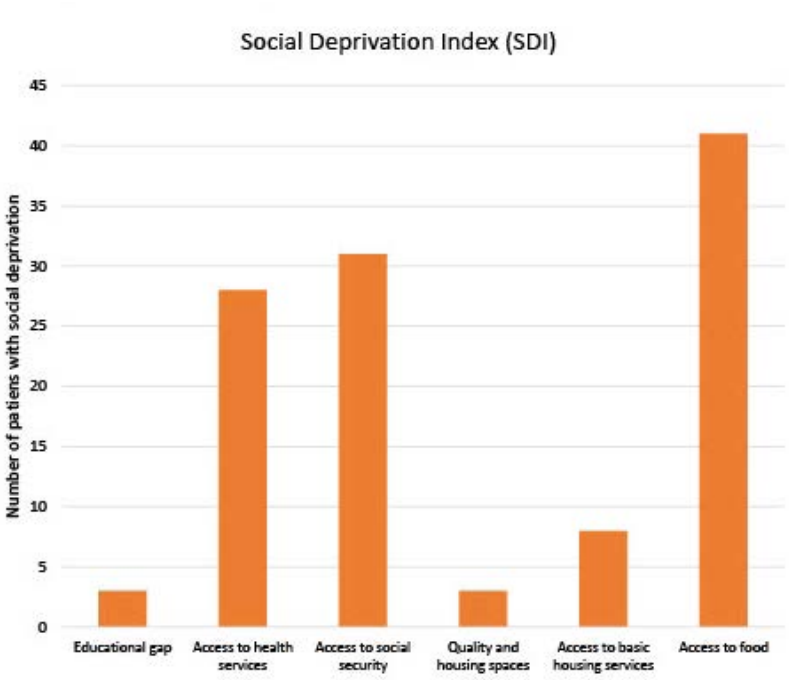


FIGURE 1
The Social Deprivation Index by the CONEVAL (the national council for the evaluation of social development policy): Index built for each person from the sum of the six indicators associated with social deprivation; is the number of deficiencies that a person has (educational gap, access to health services, access to social security, quality and housing spaces, access to basic housing services, and access to food).

Family spending on food was 154.48 USD (IQR 63.45 – 220.68) and 41 women (95.7%) had nutrition as a SD. However, the food variety that they eat shows that 44 patients (95.7%) had an adequate nutrition and 2 (4.3%) an acceptable nutrition. We found that 17 (37.0%) patients were below the minimum well-being line, 32 (69.9%) reported extreme poverty, 7 (15.2%) were in poverty and 7 (15.2%) were vulnerable due to SDs. The women's SDs are in Figure 1.

Conclusions

Patients' SDs impact directly their ARDs prognosis, pregnancy outcomes and baby's health. Closing the gap between these SD it's imperative to improve their quality of life.

PO4:41 | Pregnancy outcomes from a joint rheumatology and obstretics service in Ireland

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Citation
Gorman, A., Moore, L., O'Brein, C., McAuliffe, F., Veale, D.J. Pregnancy outcomes from a joint rheumatology and obstretics service in Ireland.

Introduction

Rheumatic Musculoskeletal Diseases (RMD) affect women 2-3 times more than men and commonly occur in the reproductive years. Active disease in pregnancy is associated with adverse outcomes. Careful planning, combined management, and good disease control are essential before and throughout the pregnancy. The Rheumatology Obstetric Service (ROSE) was established to improve pregnancy outcomes for patients with RMD.

Purpose

This study aims to describe the pregnancy outcomes in patients with RMD attending the ROSE clinic.

Methods

Patient demographics, characteristics, and pregnancy outcomes were collected from 150 patients attending the ROSE clinic between 2018 and 2022.

Results

Patient characteristics are outlined in Table 1. Medications used throughout pregnancy are outlined in Table 2. Of the 150 pregnancies, 97.3% (n=146) had a live birth. Normal vaginal delivery occurred in 47.2%(n=69), and 16.4% (n-= 24) experienced an emergency c-section. Pre-term birth occurred in 5.4%. Neonatal ICU admission was required in 8.2% (n=12). Maternal adverse outcomes occurred in 15% (n=22), 50% (n=11) of which were maternal infections. Pregnancy outcomes for inflammatory arthritis and connective tissue disease patients are outlined in Table 3.

TABLE 1: Patient characteristics

Patient Characteristics	n=150
Age, median (IQR), years	34 (32-37)
Ethnicity, n (%)	
Caucasian	134(89)
Other	16(11)
Diagnosis, n(%)	
Inflammatory Arthritis	
Rheumatoid Arthritis	48(32)
Psoriatic Arthritis	27(18)
Ankylosing Spondylitis	9(6)
Juvenile Idiopathic Arthritis	8(5)
Reactive Arthritis	3(2)
Connective Tissue Disease	
Systemic Lupus Erythematosus	18(12)
Undifferentiated Connective Tissue Disease	6(3)
Mixed Connective Tissue Disease	3(2)
Sjogren's syndrome	17(11)
Primary Raynaud's	3(2)
Vasculitis	
Behcet's disease	3(2)
Other	6(4)
Antibody status, n(%)	
Anti-Ro antibody	18 (12)
Anti-cardiolipin antibody	9 (6)
Beta2-glycoprotein	11 (7)
Lupus anticoagulant	3 (2)

TABLE 2: Medications taken during pregnancy

Medications taken during pregnancy, n (%)	
Azathio	30 (16)
LEFlu	10 (12)
Glucocorticoids	23 (15)
csDMARDs	
Hydroxychloroquine	46 (28)
Azathioprine	4 (2)
Sulfasalazine	4 (2)
bDMARDs	
Abatacept	17 (11)
Etanercept	7 (5)
Certolizumab	10 (6)
Golimumab	2 (1)
Infliximab	4 (3)
Ixekizumab	1 (0.6)
Rituximab	1 (0.6)
Secukinumab	4 (3)
Tocilizumab	4 (3)

TABLE 3: Pregnancy outcomes

Pregnancy Outcomes									
Miscarriage	2	2	0	0	2	2	0	0	2
Deliveries									
Live births	140	46	27	2	93	10	17	2	44
Intrauterine fetal death	0	0	0	0	0	0	0	0	0
Gestation, (median (IQR), weeks	39 (37-39)	39 (38-40)	39 (38-40)	37 (37-38)	39 (38-40)	38 (37-39)	39 (37-39)	39 (38-40)	39 (38-40)
Sex of neonate									
Male	74	26	14	2	53	8	8	2	17
Female	69	19	13	0	37	0	11	1	23
Mode of delivery									
Normal vaginal delivery	101	33	14	0	45	7	0	1	24
Assisted delivery	23	9	3	1	14	0	1	2	2
Elective caesarean section	30	8	5	1	15	0	6	0	14
Emergency caesarean section	24	9	4	3	19	1	4	0	6
Neonatal birth weight (NBW) g	3400 (2915-3690)	3432 (3025-3770)	3481 (3175-3814)	2870 (2640-3029)	3435 (3010-3780)	3267 (2975-3665)	3140 (2570-3520)	3520 (3150-3830)	3362 (2930-3550)
Maternal complications									
Cesarean section (all)	55	17	9	3	19	4	11	2	9
Unplanned ICU admission	2	0	0	1	1	0	1	0	1
Infection	11	3	6	0	11	0	0	0	0
Pre-eclampsia	2	0	0	0	0	1	1	0	2
Maternal blood transfusion	2	1	0	1	1	1	0	0	1
Fetal Complications									
Low birth weight	17	3	5	0		2	1	0	7
NICU admission	10	4	2	0	0	2	0	0	5
Corpse	0	0	0	0	0	0	0	0	0
Cytomegalovirus	10	5	0	0		4	1	0	7
Neonatal death	1	0	0	0	0	0	1	0	1
Congenital heart defects	3	1	0	0	1	0	2	0	2

Conclusions
This study describes the pregnancy outcomes of RMD patients attending the ROSE clinic. Favorable pregnancy outcomes were achieved with high live birth rates and low incidences of maternal and fetal complications.

PO4:42 | A holistic approach is needed for women with an inflammatory arthritis in the different periods around pregnancy. The results of the CAPRI study

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Citation

Wintjes, H.M., Steensel-Boon, A.J.V., Röder, E., Smeele, H.T.W., Koppen, L.J.C.K., Kammah, N., Perez-Garcia, L.F., Dolhain, R.J.E.M. A holistic approach is needed for women with an inflammatory arthritis in the different periods around pregnancy. The results of the CAPRI study.

Purpose

Inflammatory arthritis (IA) often affects women during their reproductive years. One of the aims of the CAPRI study was to explore information needs for these women in the different periods around pregnancy: pre-conception, pregnancy and postpartum.

Methods

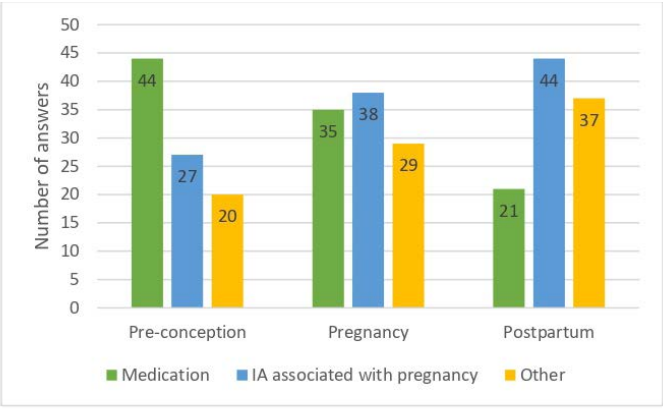
Women (?18 years) diagnosed with IA who visited the Reproductive Rheumatology clinic from the Erasmus University Medical Center were invited to complete an online questionnaire. The questionnaire was divided into 3 parts, corresponding with the different periods around pregnancy: pre-conception, pregnancy and postpartum. In each part there was a section that focused on the topics women want to discuss. For this analysis, we included these 3 sections to get in-depth information on the women's expectations regarding the medical care around the aforementioned phases of pregnancy. Answers were provided by means of free-text. Answers were categorized into 3 categories: A. medication, B. IA associated with pregnancy, C. other. Descriptive statistics were used to represent the outcomes.

Results

181 women were invited to participate to the CAPRI study. In total 102 agreed to participate. 71 Women provided at least one answer to the questions relevant to this analysis. Demographic information is provided in Table 1. Participants expressed their need to receive clear information about medication and disease control in the pre-conception period. Furthermore, during pregnancy and postpartum, participants have different needs. They expressed their desire to receive information on topics such as healthy pregnancy, coping with balance, nutrition, ergonomic tips and the experience of other women in a similar situation (Figure 1 and 2).

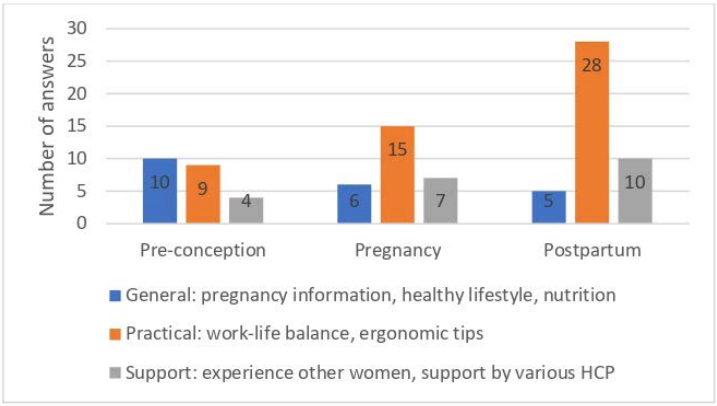
TABLE 1: Demographics

	N=71
Age years mean, (range)	32.5 (22-45)
Diagnosis, n (%) • Rheumatoid arthritis • Psoriatic arthritis • Spondyloarthritis • Juvenile Idiopathic arthritis • Other immunological disease • Other forms of arthritis	 43 (41.7%) 17 (16.5%) 16 (15.5%) 15 (14.56) 3 (2.9%) 1 (0.9%)
Age at diagnosis, mean (range) • Rheumatoid arthritis • Psoriatic arthritis • Spondyloarthritis • Juvenile Idiopathic arthritis	 25 (0-39) 26.5 (18-33) 28.8 (19-39) 7.9 (2-16)
Number of children, mean (range)	1.5 (1-3)
Age of youngest child, months (range)	14.1 (1-30)
First child, n (%)	42 (59.15)
Counselling received in the Department of Rheumatology, n (%) • Rheumatology nurse • Rheumatologists • Both	96 (96.97) 13 (13.54) 3 (3.13) 80 (83.33)
Higher professional education and university educated, n (%)	57 (64.77)
Working women, n (%) Working hours per week, mean (range)	59 (83.1) 27.81 (8-40)



*IA: inflammatory arthritis

FIGURE 1
Topics women want to discuss in the different periods around pregnancy.



*HCP: Health Care Professionals

FIGURE 2
Category 'Other' specified.

Conclusion

Women diagnosed with IA who attend the specialized Reproductive Rheumatology clinic have different needs during the different periods around pregnancy. Historically, health care professionals have focused on medication and disease activity as the most important topics. However, especially during pregnancy and postpartum, these women need a more holistic approach.

Recommendation

During all periods of pregnancy, attention for medication and a treat-to-target approach is very important for these women. Moreover, a more holistic approach for these women focusing on other important topics is recommended. A specialized rheumatology nurse with experience in Reproductive Rheumatology is ideal to fulfill this aim.

PO4:43 | Preterm birth in women with psoriatic arthritis: What are the risk factors? A collaborative cohort study from sweden and Denmark

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Citation
Hellgren, K., Secher, A.E., Remaeus, K., Granath, F., Glintborg, B., Rom, A.L., Michelsen, B., Hetland, M.L. Preterm birth in women with psoriatic arthritis: What are the risk factors? A collaborative cohort study from sweden and Denmark.

Purpose
To explore the link between maternal psoriatic arthritis (PsA) and preterm birth in relation to anti-rheumatic treatment and disease activity before and during pregnancy.

Methods
Through linkage of national medical birth registers to prospective clinical rheumatology registers (CRR) in Sweden (SRQ) and Denmark (DANBIO), we assembled 629 PsA-pregnancies and 6290 control-pregnancies (matched 1:10 on maternal age, birth year, parity) with delivery 2006-2020. We collected information on anti-rheumatic drugs including biological (b) DMARD, conventional synthetic (cs)DMARD and oral steroids, and PsA disease activity nine months before and during pregnancy from the CRR and the prescribed drug register, see Table 1 for definitions. Applying logistic regression, we estimated adjusted odds ratios (ORs) with 95% confidence intervals (CI) for preterm birth in PsA-pregnancies versus control-pregnancies overall, and stratified by anti-rheumatic treatment and disease activity before and during pregnancy. Apart from the matching variables, we adjusted for body mass index, smoking, educational level, and country.

Results
Overall, PsA-pregnancies versus control-pregnancies had an almost double risk of preterm birth; OR 1.78 (1.26-2.52). Women who used bDMARD in combination with csDMARD and/or oral steroids during pregnancy had increased proportions of preterm birth (17.5%) whereas women using any monotherapy or oral steroids and csDMARD had not (4.3%). A similar, but less pronounced, pattern was observed for treatment before pregnancy. High disease activity before pregnancy was associated with higher risks. The same association was not observed for high disease activity during pregnancy, Table 1. Further, use of bDMARD and steroids and/or csDMARD before pregnancy, but stopping bDMARD in the first trimester yielded an OR of 6.0 (2.54-14.2) with a proportion of preterm birth of 21.6%. OR for those continuing bDMARD into late pregnancy was 2.81, 0.82-9.61 (proportion of preterm 11.5%).

TABLE 1: Preterm birth in PsA-pregnancies versus control-pregnancies stratified on antirheumatic treatment and disease activity before and during pregnancy, results of logistic regression analysis showing odds ratios with 95%CI

Antirheumatic treatment	Before pregnancy		During pregnancy	
	No. events/ No. pregnancies (%)	OR (95% CI)[1]	No. events/ No. pregnancies (%)	OR (95% CI)[1]
Control-pregnancies	287/6290 (4.6)	1.00 (Ref)	287/6290 (4.6)	1.00 (Ref)
PsA-pregnancies				
No treatment	16/250 (6.4)	1.43 (0.81-2.51)	29/358 (8.1)	**1.76 (1.12-2.76)**
bDMARD or csDMARD or/and oral steroids	22/271 (8.1)	**1.83 (1.09-3.07)**	9/208 (4.3)	1.03 (0.50-2.13)
bDMARD and csDMARD and/or oral steroids	11/108 (10.2)	**2.50 (1.27-4.90)**	11/63 (17.5)	**4.49 (2.21-9.10)**
Disease activity[2]	**Before pregnancy**		**During pregnancy**	
Low activity	4/78 (5.1)	1.32 (0.47-3,68)	5/59 (8.5)	1.96 (0.69-5.53)
High activity	21/179 (11.7)	**2.63 (1.55-4.45)**	9/116 (7.8)	1.76 (0.84-3.68)
No information on disease activity	24/372 (6.5)	**1.48 (0.92-2.37)**	35/454 (7.7)	**1.76 (1.18-2.64)**

[1]Odds ratio (OR) with 95% confidence interval (CI) adjusted for maternal age, parity, country, smoking and body mass index
[2]Disease activity defined as a compound measure of disease load as 'high', if there was any registration of HAQ ≥1, CRP ≥10 mg/L and/or DAS28-CRP ≥3.2 in the nine months before or during pregnancy.
bDMARD= biological disease modifying antirheumatic drugs, csDMARD= conventional synthetic DMARD

Conclusion

Anti-rheumatic treatment before/during, and high disease activity before pregnancy constitute risk factors for preterm birth in women with PsA. Stopping an ongoing therapy with bDMARD in early pregnancy correlated with a strongly increased risk. Our findings highlight that PsA, or at least a subset of patients with PsA, are high risk pregnancies underscoring the importance of adequately monitoring these women before and during pregnancy.

PO4:44 | Exercise in the course of pregnancy in women with axial spondyloarthritis

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Citation
Jakobsen, B., Ursin, K., Koksvik, H.S. Exercise in the course of pregnancy in women with axial spondyloarthritis.

Purpose

Physical activity (PA) in pregnancy has minimal risks and it has shown to benefit most women [1]. PA is an essential and well-documented part of treatment for SpA [2]. There are no known studies on physical activity (PA) in pregnancy for women with spondyloarthritis (SpA). The Norwegian guidelines for prenatal care refers to The World Health Organizations (WHO) guidelines on physical activity and sedentary [1]. Pregnant women should undertake regular physical activity throughout pregnancy and the postpartum period with at least 150 minutes of moderate-intensity aerobic physical activity throughout the week and incorporate muscle-strengthening activities [1].

The objective of this study is to describe the level of PA before, during and after pregnancy for women with axial SpA (M45, M46.8, M46.9), using data from the Norwegian nationwide quality register RevNatus.

Methods

Data from 393 women with SpA enrolled in RevNatus from February 2016 - February 2023 are included. Available data on self-reported level of physical activity, pain and fatigue on a visual analogue scale (VAS) 0-100, the bath ankylosing spondylitis disease activity index (BASDAI) score and body mass index (BMI) from seven time points before, during and after pregnancy are collected and presented.

Results

TABLE 1

		Before pregnancy N = 128	1st trimester N = 230	2nd trimester N = 253	3rd trimester N = 235	6 weeks postpartum N = 234	6 months postpartum N = 204	12 months postpartum N = 188
Regular exercisers ≥ 3 times a week		**34,4 %**	**20 %**	**14,2 %**	**11,1 %**	**13,3 %**	**20,1 %**	**22,9 %**
	BASDAI mean (SD)	3,0 (2,3)	3,2 (2,3)	2,9 (2,0)	3,6 (2,0)	3,0 (2,4)	3,4 (2,5)	3,6 (2,5)
	VAS pain mean (SD)	28,6 (24,4)	28,0 (24,0)	30,0 (23,4)	38,7 (26,2)	32,5 (27,1)	32,0 (27,3)	32,9 (25,1)
	VAS fatigue mean (SD)	36,4 (28,8)	54,5 (31,6)	42,9 (24,4)	50,3 (28,6)	36,8 (27,4)	36,6 (31,3)	43,8 (31,4)
	BMI mean (SD)	24,7 (1,2)	24,8 (3,6)	26,3 (3,3)	28,3 (3,7)	27,5 (5,3)	26,9 (5,4)	26,2 (5,5)
Irregular exercisers ≤ 2 times a week		**37,5 %**	**37,4 %**	**38,3 %**	**26,8 %**	**20,9 %**	**35,3 %**	**40,4 %**
	BASDAI mean (SD)	3,1 (2,2)	3,5 (2,0)	2,9 (2,00)	3,3 (2,4)	2,9 (2,4)	3,2 (2,4)	3,4 (2,4)
	VAS pain mean (SD)	29,1 (24,5)	33,0 (22,1)	32,9 (25,0)	35,9 (27,7)	31,3 (26,4)	30,5 (27,2)	34,0 (27,2)
	VAS fatigue mean (SD)	40,1 (37,7)	59,6 (28,9)	44,8 (29,4)	47,8 (31,6)	35,3 (31,4)	38,8 (32,9)	44,1 (31,2)
	BMI mean (SD)	26,0 (5,9)	25,8 (5,3)	26,5 (4,5)	28,0 (4,5)	25,6 (4,6)	24,8 (4,8)	25,7 (5,1)
Non-exercisers ≤ 3 times a month		**28,1 %**	**42,6 %**	**47,5 %**	**62,1 %**	**65,8 %**	**44,6%**	**36,7 %**
	BASDAI mean (SD)	3,2 (2,3)	3,6 (2,1)	3,7 (2,2)	3,8 (2,3)	3,3 (2,2)	3,8 (2,4)	3,7 (2,6)
	VAS pain mean (SD)	30,2 (25,4)	36,3 (25,9)	43,8 (26,2)	44,1 (29,0)	35,7 (26,5)	42,6 (29,4)	37,9 (28,8)
	VAS fatigue mean (SD)	39,7 (31,4)	59,1 (30,5)	54,5 (27,7)	54,7 (28,5)	41,3 (28,8)	43,1 (30,8)	45,3 (33,0)
	BMI mean (SD)	25,8 (5,8)	26,3 (5,0)	27,6 (4,9)	30,1 (5,4)	26,9 (4,9)	26,1 (5,4)	25,95 (6,1)

Conclusions
A large proportion (46 - 62 %) were non-exercisers through pregnancy and did not adhere to the WHO guidelines for PA.

Women in the non-exercise group reported higher levels of pain at all seven time-points compared to the regular and irregular exercisers.

PA should be an integral part of standard care throughout the course of disease for people with SpA and healthcare providers should take responsibility for promoting it and make necessary referrals to ensure that people with SPA receive appropriate PA-interventions [2].

References

[1] Bull, F.C., et al., World Health Organization 2020 guidelines on physical activity and sedentary behaviour. Br J Sports Med, 2020. 54(24): p. 1451-1462.

[2] Gwinnutt, J.M., et al., Effects of physical exercise and body weight on disease-specific outcomes of people with rheumatic and musculoskeletal diseases (RMDs): systematic reviews and meta-analyses informing the 2021 EULAR recommendations for lifestyle improvements in people with RMDs. RMD Open, 2022. 8(1).

PO4:45 | Pregnancy outcome and offspring follow-up in rheumatoid arthritis patients

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Citation
Bobirca, A., Andreoli, L., Alexandru, C., Ancuta, I., Ceausu, I., Poalelungi, C., Bojinca, M. Pregnancy outcome and offspring follow-up in rheumatoid arthritis patients.

Pregnancy in RA patients is considered at risk due to the impact of disease activity and the disease-modifying antirheumatic drugs (DMARD) on fetus development requiring adjustment with the appropriate medication.

Purpose
The main purpose of this study was to analyze the frequency of adverse pregnancy outcomes(APO) among RA patients, with a secondary objective of determining the well-being of their offspring.

Methods
We analyzed a cohort of 82 pregnancies from multiple clinics in Romania between 2012 and 2022. Data on 42 children was collected.

Results
The rate of live births was 80.5%, while 18.3% had spontaneous miscarriage and 1.2% stillbirth. The frequency of APO was as follows: 11.0% had a preterm delivery, 7.3% were registered for small for gestational age, 4.9% for intrauterine growth restriction and 1.2% for eclampsia. The rate of unplanned pregnancy was 23.2% of which 78.9% had an APO($p<0.001$) mainly spontaneous abortion (47.4%). No significant correlation was made between pregnancy planning and disease flare during gestation or post-partum. The patients with APO were older, had a longer disease before pregnancy and an active disease slightly more frequent during each trimester. Planned pregnancy and low dose of corticotherapy during pregnancy was associated with a good outcome. The fallow-up period for the 42 infants had a median of 5 years (0.25-10). APGAR was available for 41 neonates (median(min-max) of 9(6-10)). No congenital malformations were registered. 92.9% of the children received vaccines according to the national schedule (only one Certolizumab pegol exposure during the third trimester). The rate of breastfeeding was 90.5%, with a median of 13(0-104) weeks, significantly associated with the rate of post-partum flare of mothers RA. There was one infant diagnosed with juvenile idiopathic arthritis and one with ulcerative colitis. Speech therapy was required in 14.3% of cases. Hospitalization was required in 42.9% of children, mainly for infectious diseases, while 33.3% had allergies and 33.3% had atopic dermatitis.

Conclusions

Unplanned pregnancies and intrapartum active disease are the most important factors associated with APO in RA. The general wellbeing outcomes of descendant did not show alarming morbidities.

PO4:46 | Preconception counseling impact in pregnancy outcomes in patients with spondylarthritis

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Citation

Tiago, B., Nicolau, R., Santos, I., Guimaraes, F., Aguiar, F., Ganhao, S., Rodrigues, M., Filipa, N., Rocha, A., Monteiro, S., Brito, I. Preconception counseling impact in pregnancy outcomes in patients with spondylarthritis.

Purpose

Spondyloarthritis (SpA) is a group of chronic inflammatory diseases, often affecting women in reproductive age. These diseases can have a significant impact on the reproductive health of women. Preconception counseling and medication adjustments have shown to reduce flares and improve pregnancy outcomes in women with rheumatoid arthritis. However, in women with SpA data of the impact of preconception counselling on pregnancy outcomes is scarce. The aim of this study is to evaluate that.

TABLE 1

	Preconception counselling	No preconception counseling	Total	p-score
Patient Characteristics				
Age (years)	33.43±4.34 (22-41)	33.67±4.81 (27-42)	33.90±4.43 (22-42)	0.990
Months since onset disease	61.93±39.19 (12-168)	42.47±32.95 (5-132)	58.10±41.36 (2-182)	0.177
Previous pregnancies	1.20±1.10 (0-4)	1.73±0.96 (1-4)	1.20±1.16 (0-4)	0.072
Previous abortion	6/23 (26.09%)	3/14(21.43%)	9/43(20.93%)	0.955
Preconception				
Pregnancy with contraindicated medication	0/30 (0.00%)	3/15 (20.00%)	3/45 (6.67%)	0.011
bDMARD started in preconception	5/30 (16.67%)	2/15 (13.33%)	7/45 (15.56%)	0.771
Medication				
Prednisolone	6/30 (20.0%)	4/15 (26.67%)	10/45 (22.22%)	0.612
Sulfasalazine	2/30 (6.67%)	7/15 (46.67%)	9/45 (20.0%)	0.002
Certolizumab	10/30 (33.3%)	1/15 (6.67%)	11/45 (24.44%)	0.050
Pregnancy outcomes				
Flare during pregnancy	4/28 (14.29%)	5/15 (33.33%)	9/43 (20.93%)	0.143
Flare after pregnancy	1/26 (3.85%)	4/15 (26.67%)	5/41 (12.19%)	0.031
Successful pregnancy	24/30(80.0%)	15/15(100%)	39/45(86.67%)	0.063
Birth outcomes				
Gestational age	38.13±1.33 (35-40)	38.46±1.13 (36-40)	32.60±13.54 (2-41)	0.087
Newborn Weight (grams)	3243.65±439.45 (2330-4340)	3227.67±428.37 (2520-4200)	2656.20±1310.60 (2-4340)	0.288
Fetal malformation	1/23 (4.35%)	0/15 (0.00%)	1/38 (2.63%)	0.413
Preterm birth	3/24 (12.50%)	1/15 (6.67%)	4/39 (10.26%)	0.559
Intrauterine growth restriction	0/24 (0.00%)	1/15 (6.67%)	1/39 (2.56%)	0.200

Methods
In this retrospective multicentric study, data was collected from medical records of women who gave birth from 2020 to 2022. The study included 45 pregnancies, which were divided into two categories whether they received preconception consultation or not. Data was collected on patient characteristics, disease duration, medications used, and preconception counselling. Outcomes were divided into two groups: maternal and fetal outcomes.

Results
30 out of 45 pregnancies (66.67%) had received preconception counselling, having a significantly lower percentage of flares occurring after pregnancy compared to the non-counselling group (36.6% vs 6.4%, p=0.031) and lower percentage of contraindicated medication during pregnancy (20.0 vs 0.0%, p=0.011).

Conclusion
Preconception counselling in women with SpA can increase the likelihood of medication adjustments before pregnancy and decrease the occurrence of flares after pregnancy. These findings suggest that preconception counselling should be implemented in the management of pregnant women with SpA to improve pregnancy outcomes. Further studies are needed to confirm the effectiveness of preconception counselling and to determine the optimal approach.

PO4:47 | Impact of spondyloarthritis on pregnancy outcome: A retrospective descriptive analysis from a specialized center in Qatar

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Citation
Emadi, S.A., Hadwan, N., Saleh, R., Satti, E., Singh, R. Impact of spondyloarthritis on pregnancy outcome: A retrospective descriptive analysis from a specialized center in Qatar.

Introduction
Spondylarthritis most commonly presents in the childbearing age and thus pregnancy is of concern. Nevertheless, there is paucity of data reporting the outcome of pregnancy in this group of patients.

Objective
The aim of this study was to retrospectively describe the pregnancy outcome in women with SpA from the Middle East.

Methods
We sequentially reviewed the electronic health records of all pregnant women attending a specialized pregnancy and rheumatic disease clinic

TABLE 1: Outcome of pregnancy in women with axSpA and non-axSpA

	All pregnancies n=47	axSpA n=22	Non-axSpA n=25	*p* value
Complications during pregnancy	18 (38%)	14 (64%)	4 (16%)	**0.001**
Pre-eclampsia	3 (6%)	3 (14%)	0 (0%)	0.095
Gestational diabetes	12 (26%)	8 (36%)	4 (16%)	0.180
Gestational hypertension	0 (0%)	0 (0%)	0 (0%)	1.00
UTI	3 (6%)	3 (14%)	0 (0%)	
Delivery mode:				0.576
NVD	19 (40%)	7 (32%)	12 (48%)	0.259
CS (all)	25 (53%)	13 (59%)	12 (48%)	0.561
Elective CS	22 (47%)	12 (55%)	10 (40%)	0.387
Emergency CS	3 (6%)	1 (5%)	2 (8%)	1.00
Assisted delivery	3 (6%)	2 (9%)	1 (4%)	0.476
Indication for emergency CS/assisted delivery:				
Fetal bradycardia				
Fetal distress				
Prolonged 2nd stage	1 (2%)	1 (5%)	0 (0%)	
Oligohydramnios	3 (6%)	0 (0%)	3 (12%)	
	1 (2%)	1 (5%)	0 (0%)	
	1 (2%)	1 (5%)	0 (0%)	
Live births	47 (100%)	22 (100%)	25 (100%)	1.000
Gestational week				0.629
<37	3 (6%)	1 (5%)	2 (8%)	
37-41	44 (94%)	21 (95%)	23 (92%)	
>41	0 (0%)	0 (0%)	0 (0%)	
Birth weight (kg) *	3.04±0.44	3.07±0.53	3.00±0.35	0.131
<2500	4 (9%)	2 (9%)	2 (8%)	
2500-4000	42 (91%)	20 (91%)	22 (92%)	
>4000	0 (0%)	0 (0%)	0 (0%)	
NICU admission	4 (9%)	0 (0%)	4 (16%)	0.112
Hypoxia	2 (4%)	0 (0%)	2 (8%)	
Sepsis	1 (2%)	0 (0%)	1 (4%)	
Distress	1 (2%)	0 (0%)	1 (4%)	
Congenital abnormality	1 (2%)	0 (0%)	1 (2%)	

between 2016 and 2022. Women diagnosed with Spondylarthritis who had completed pregnancy outcome data were included. Statistical analysis compared maternal and fatal outcomes in women with axial spondyloarthritis (axSpA) and non-axial spondyloarthritis (non-axSpA) was performed.

Results

Fifty-nine pregnancies were identified from hospital records. Two pregnancies were excluded due to delivery outside the hospital and data not available. Ten pregnancies ended in early miscarriage. The 47 remaining pregnancies resulted in a live singleton birth. HLA-B27 was positive in only 15% of the patients and solely in women with ax-SpA.

Maternal age was significantly higher for pregnancies in the non-axSpA vs. axSpA group (31.48 vs. 29.64 years, $p<0.04$). patients with non ax-SpA were more likely to receive non-biologic DMARDs than ax-SpA.

Overall maternal gestational morbidities were significantly higher in women with axSpA vs. non-axSpA (64% vs. 16%, $p=0.001$). There were no significant differences in mode of delivery (NVD, CS or assisted delivery) or fetal outcomes (gestation, birth weight, NICU admission or congenital abnormality) between pregnancies in women with axSpA vs. women with non-axSpA.

Conclusions

There was no signal to suggest a difference in the pregnancy outcome between women with ax- SpA and non-ax-SpA. This was the first report from the middle east. More research with larger sample is required.

PO4:48 | Pregnancies in inflammatory arthritis are associated with favorable outcome: A longitudinal multicentre retrospective cohort study

Auhtor

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Citation

Hoxha, A., Pistillo, F., Calligaro, A., Favaro, M., Lorenzin, M., Carleto, A., Simioni, P., Doria, A., Ramonda, R. Pregnancies in inflammatory arthritis are associated with favorable outcome: A longitudinal multicentre retrospective cohort study.

Purpose

Concern still exists about the impact of pregnancy on inflammatory joint disease and vice versa. To evaluate the interaction between inflammatory arthritis and pregnancy we conduct a multicentre retrospective study.

Methods
From April 2017 to December 2022, 99 pregnancies of 76 women, with a median age of 35 years (IQR 31- 46) from three tertiary centers, Internal Medicine Unit, San Bortolo Hospital, Vicenza, Rheumatology Unit, University of Verona, and Rheumatology Unit, University of Padua were enrolled. Records concerning demographic data, inflammatory joint disease, disease activity, drug exposure, maternal/fetal outcomes, pregnancy complications, and congenital malformation were collected in an electronic database.

Results
Fifty-eight (58.6%) were affected with rheumatoid arthritis (RA), 20 (20.2) with psoriatic arthritis (PsA), and 21 (21.2) with ankylosing spondylitis (AS) with an overall disease duration of 120 months (IQR 72-168). There was no difference in bDMARDs use at conception between inflammatory joint diseases. Even though a higher rate of steroids was found in RA and PsA with respect to SA (36.2% and 30% vs 9.9%) there was no statistical differences. Median DAS28CRP and BASDAI at conception were respectively 2.3 (IQR 1.6-3.1) and 2.4 (IQR 0.8-4.1). There was no difference in DAS28CRP and BASDAI in the different time points i.e at conception, 1^ trimester, 2^ trimester, 3^ trimester, and post-partum, evaluated until 3 months from the labor. We had 4 (1%) flares, all in patients with PsA. There were registered 91 (89.2%) live births, 10 (9.8%) miscarriages, and 1 (0.9%) fetal death. There were three twin pregnancies. There was no difference in fetal loss according to the diagnosis and disease activity at conception. There were no differences regarding the fetal/neonatal outcome as well as pregnancy complications between pregnancies, respectively in RA, PsA, and SA. There were four (4.9%), congenital malformations, three (3.0%) in the RA group, and one (1.0%) in AS group.

Conclusions
Overall, pregnancies in patients with inflammatory joint disease are associated with a favorable outcome both in terms of the effect of the disease on pregnancy outcome and the impact of pregnancy on inflammatory disease.

PO4:49 | Pregnancy outcomes in women with non-radiographic spondylarthritis compared to ankylosing spondylitis

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Citation

Beirão, T., Santos, I., Nicolau, R., Guimaraes, F., Aguiar, F., Ganhao, S., Rodrigues, M., Filipa, N., Rocha, A., Monteiro, S., Brito, I. Pregnancy outcomes in women with non-radiographic spondylarthritis compared to ankylosing spondylitis.

Purpose

Axial Spondylarthritis (SpA) is a chronic inflammatory disease. There are two main subtypes: ankylosing spondylitis (AS) and non-radiographic spondylarthritis (nr-SpA). The difference in pregnancy outcomes and preterm delivery risk between these subtypes remains unclear. The aim of this study is to compare pregnancy outcomes between these two groups.

Methods

In this retrospective multicentric study, data was collected from medical records of 34 women with axial spondylarthritis who gave birth from 2020 to 2022. Demographic and clinical data were collected. For comparison

TABLE 1

	Non-radiographic spondyloarthritis	Ankylosing spondylitis	Total	p-score
Patient Characteristics				
Age (years)	33.74±4.83 (22-41)	35.33±3.90 (28-40)	34.40±4.45 (22-41)	0.319
Months since onset disease	61.67±39.69 (12-168)	66.73±46.63(24-182)	62.1±43.05(2-182)	0.732
Previous pregnancies	1.29±1.05(0-3)	1.58±1.16(0-4)	1.1±1.24(0-4)	0.442
Previous abortion	4/15 (26,67%)	4/19 (21,05%)	8/34(23,52%)	0.702
Preconception				
Preconception consultation	8/12 (66.67%)	12/17(70.59%)	20/29(68.96%)	0.822
bDMARD started in preconception	4/15 (26.67%)	2/19 (10,52%)	6/34 (17.65%)	0.220
Medication				
Prednisolone	2/15 (13,33%)	5/19 (26,32%)	7/34 (20,58%)	0.353
Sulfasalazine	2/15 (13,33%)	4/19 (21,05%)	6/34 (17,65%)	0.558
Certolizumab	5/15 (33,33%)	6/19 (31,58%)	11/34 (32,35%)	0.914
Pregnancy outcomes				
Flare during pregnancy	1/12 (7.69%)	6/13 (46.15%)	7/25 (28.00%)	0.108
Flare after pregnancy	1/11 (9.09%)	3/15 (20.00%)	4/26 (15.38%)	0.511
Successful pregnancy	12/15(80.00%)	17/19(89.47%)	29/34(85.29%)	0.439
Birth outcomes				
Gestational age	39.05±1.03 (37-41)	37.67±1.78(35-40)	33.1±13.19(2-41)	0.051
Newborn weight (grams)	3296.71±403.26(2330-4340)	3116.67±288.10(2720-3480)	2748.6±1205.63(2-4340)	0.104
Fetal malformation	0/12 (0.00%)	1/16 (6.25%)	1/28 (3.57%)	0.393
Preterm birth	4/12(33.33%)	0/17(0.00%)	4/29(13.79%)	**0.010**
Intrauterine growth restriction	1/11(9.09%)	0/17(0.00%)	1/28(3.57%)	0.414

analysis, the subjects were divided in two subgroups: ankylosing spondylitis and non-radiographic spondylarthritis. Maternal and fetal outcomes were evaluated.

Results

Fifteen women (44.12%) had nr-SpA and the other 19 (55.88%) patients were diagnosed with AS. The AS subgroup included older women, longer disease duration and higher number of previous pregnancies compared with nr-SpA, although with no statistical significant difference. Similar rates of preconception consultation and previous therapy with bDMARDs were observed in both groups. The subgroup with AS had higher percentage of flared during pregnancy than those with nr-SpA (7.70% vs 31.60%, p=0.108). On the contrary, significantly higher risk of preterm delivery was found in nr-SpA group (33.33% vs 0.00%, p=0.010). No statistical difference was found on birth outcomes between the two groups.

Conclusion

This study suggests the existence of an increased risk of preterm delivery in women with nr-SpA compared to women with AS and the need for clinicians to be aware of that. One possibility is that non-radiographic spondylarthritis is less well-defined and may encompass a wider range of diseases with varying levels of severity. This could make it more difficult to manage the disease and monitor the pregnancy, leading to a higher risk of complications such as preterm delivery. In contrast, ankylosing spondylitis is a well-defined disease with clear diagnostic criteria and a more predictable disease course, which may make it easier to manage during pregnancy. Further research is needed to clarify this.

PO4:50 | Spondyloarthropathy and pregnancy: A retrospective multicentric study

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Citation
Beirao, T., Santos, I., Nicolau, R., Guimaraes, F., Aguiar, F., Ganhao, S., Rodrigues, M., Filipa, N., Rocha, A., Monteiro, S., Brito, I. Spondyloarthropathy and pregnancy: A retrospective multicentric study.

Purpose

Spondyloarthropathy is a group of rheumatologic diseases that affect the axial skeleton and occasionally peripheral joints. The impact of different subtypes of spondyloarthropathy on pregnancy outcomes is not well

understood. The purpose of this retrospective multicentric study was to evaluate that.

Methods

A retrospective study in several rheumatology centres in different regions of Portugal, with inclusion of 50 pregnant women with previous spondyloarthropathy diagnosis, which were divided into five categories according the spondyloarthropathy subtypes: ankylosing spondylitis, non-radiographic spondyloarthritis, psoriatic arthritis, enteropathic arthritis, and undifferentiated spondyloarthropathy. Data on patient characteristics, medication use, pregnancy outcomes, and fetal outcomes were collected and compared between the five spondyloarthropathy subgroups.

Results

The most frequent disease ankylosing spondylitis (38.0%). Among the five spondyloarthropathy subgroups, ankylosing spondylitis and non-radiographic

TABLE 1

	Ankylosing spondylitis (n=19)	Non-radiographic spondyloarthritis (n=15)	Psoriatic arthritis (n=10)	Enteropatic Spondylarthritis (n=4)	undifferentiated spondylarthritis (n=2)	Total (n=50)
Patient characteristics						
Age (years)	35.33±3.90 (28-40)	33.74±4.83 (22-41)	33.00±3.74(25-39)	34.25±6.13 (28-42)	28;30	33.90±4.43 (22-42)
Disease duration	66.73±46.63(24-182)	61.67±39.69 (12-168)	62.50±38.99(12-137)	28.50±24.69(9-64)	5;48	58.10±41.36 (2-182)
Previous pregnancies	1.58±1.16(0-4)	1.29±1.05(0-3)	1.10±0.74(0-3)	2.25±1.50(1-4)	1;0	1.20±1.16 (0-4)
Previous abortion	4/19 (21,1%)	4/15 (26,7%)	8/10 (80.0%)	1/4 (25.0%)	0/2(0.0%)	9/43(20.9%)
Preconception						
Preconception consultation	12/17(70.6%)	8/12 (66.7%)	8/10 (80.0%)	1/4 (25.0%)	1/2(50.0%)	30/50(60.0%)
bDMARD started in preconception	2/19 (33.3%)	4/15 (66.7%)	1/10 (10.0%)	2/4(50.0%)	0/2(0.0%)	9/50(18.0%)
Medication						
Prednisolone	5/19 (26.3%)	2/15 (13,3%)	3/10 (30.0%)	1/4(25.0%)	0/2(0.0%)	11/50(22.0%)
Sulfasalazine	4/19 (21.1%)	2/15 (13,3%)	3/10 (30.0%)	0/4(0.0%)	0/2(0.0%)	9/50(18.0%)
Certolizumab	6/19 (31.6%)	5/15 (33,3%)	1/10 (10.0%)	1/4(25.0%)	0/2(0.0%)	13/50(26.0%)
Pregnancy outcomes						
Flare after pregnancy	3/15 (16.7%)	1/11 (8.3%)	0/8 (0.0%)	1/4(25.0%)	0/2(0.0%)	5/50(10.0%)
Flare during pregnancy	6/13 (31.6%)	1/12 (7.7%)	2/8(25.0%)	1/4(25.0%)	0/2(0.0%)	10/50(20.0%)
Successful pregnancy	17/19(89.5)	12/15(80.0%)	7/10(70%)	4/4(100%)	2/2(100.0%)	42/50(84.0%)
Fetal outcomes						
Gestational age	37.67±1.78(35-40)	39.05±1.03 (37-41)	38.43±0.79(37-39)	37.75±0.96(37-39)	39;38	32.60±13.54 (2-41)
Newborn Weight (grams)	3116.67±288.10(2720-3480)	3296.71±403.26(2330-4340)	3278.33±530.56(2320-4030)	3417.50±632.37(2750-4200)	3250;2660	2656.20±1310.60 (2-4340)
Fetal malformation	1/16 (5.9%)	0/12 (0.0%)	0/6 (0.0%)	0/4 (0.0%)	0/2(0.0%)	1/50(2.0%)
Preterm birth	0/17(0.0%)	4/12(33.3%)	0/7 (0.0%)	0/4 (0.0%)	0/2(0.0%)	4/50(8.0%)
Intrauterine growth restriction	0/17(0.0%)	1/11(8.3%)	0/7 (0.0%)	0/4 (0.0%)	0/2(0.0%)	1/50/2.0%)

spondyloartritis were the ones with longer disease duration. Sixty percent of the women had preconception consultation, with the highest prevelance observed in the psoriatic arthritis group. Analysing the therapies, we observed that bDMARD was started in 18.0% of patients in preconception appointment, specifically certolizumab-pegol. 10.0% of patients had a flare during pregnancy and 20.0% afterwards. About foetal outcomes, one case of foetal malformation and one case of intrauterine growth restriction occurred and 8.0% of births were preterm.

Conclusion

This study shown that pregnancy can have an impact on disease activity. Still, only a low percentage of patients had a disease flare. This can be related to high preconception counseling and optimization of therapies, including DMARDs. This study suggests that with proper management and monitoring, most women with spondyloarthritis can have successful pregnancies and healthy babies, but further research is needed related to high preconception counseling and optimization of therapies, including DMARDs.

PO5:51 | Breastfeeding in women with autoimmune rheumatic diseases

Author

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Citation

Chapa, A.C., Rubio-Torres, D.C., Ramos-Suque, D.J., Delgado-Ayala, S.M., Sandoval-Torres, G.G., Skinner-Taylor, C.M., Pérez-Barbosa, L., La Garza, J.A.C., Galarza-Delgado, D.Á. Breastfeeding in women with autoimmune rheumatic diseases.

Purpose

The World Health Organization recommends exclusive breastfeeding for the first 6 months of life and then starting complementary feeding while continuing breastfeeding until 2 years of age or older. However, women with autoimmune rheumatic diseases (ARDs) face barriers of ignorance regarding medications that are compatible with breastfeeding and the control of their disease activity. It has been reported that some women did not follow through with their desire to breastfeed due to concerns about their ARDs medications, the baby's health, and low milk supply. Nowadays, international guidelines agree that most drugs used in rheumatology are compatible with breastfeeding. We aim to describe the frequency of breastfeeding in women with ARDs.

TABLE 1: Sociodemographic characteristics and breastfeeding

			n (%) n= 63
Age, mean ± SD			38.84 ± 7.49
Place of residence, n (%)			
	Rural area		2 (3.2)
	Urban area		61 (96.8)
Education, n (%)			
	Elementary school		3 (4.8)
	Middle school		11 (17.5)
	High school		16 (25.4)
	College or more		33 (52.4)
Diagnosis, n (%)			
	Rheumatoid arthritis		35 (55.6)
	Systemic lupus erythematosus		9 (14.3)
	Primary Sjögren's syndrome		2 (3.2)
	Scleroderma		2 (3.2)
	Spondylarthritis		2 (3.2)
	Antiphospholipid syndrome		1 (1.6)
	Juvenile idiopathic arthritis		1 (1.6)
	Undifferentiated connective tissue disease		1 (1.6)
	Other		10 (15.9)
Breastfeeding, n (%)			
	Skin to skin contact	Yes	23 (36.5)
		No	40 (63.5)
	Explanation on how to breastfeed	Yes	52 (82.5)
		No	11 (17.5)
	Contraceptive method recommendation	Yes	45 (71.4)
		No	18 (28.6)
	Provided breastfeeding	Yes	49 (77.8)
		No	14 (22.2)
	Breastfeeding duration n=49	Less than 1 month	3 (6.1)
		Less than 6 months	24 (49)
		More than 6 months	22 (44.9)

SD: Standard deviation

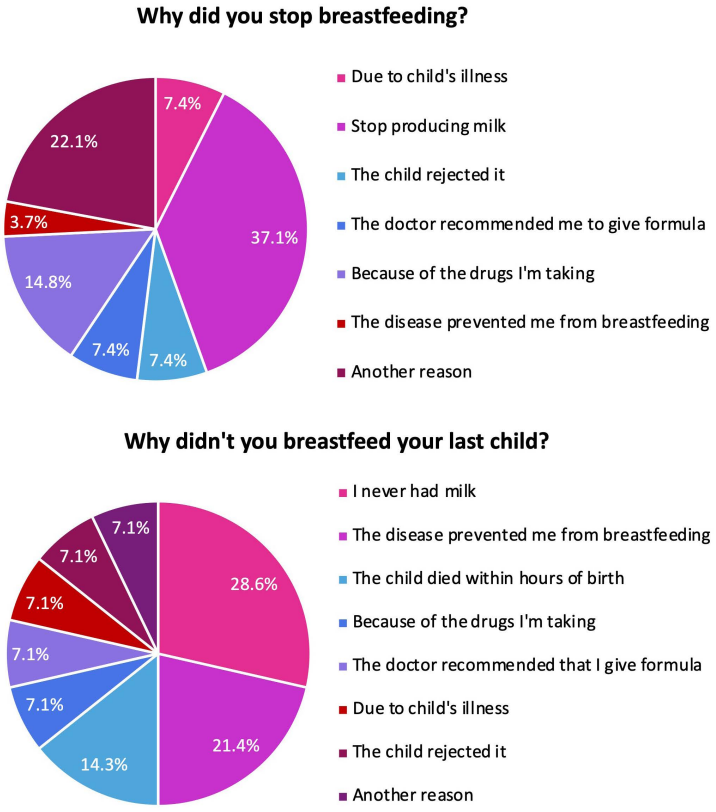


FIGURE 1
A cross-sectional survey on breastfeeding in women with autoimmune rheumatic diseases.

Methods
An observational, cross-sectional and descriptive study. A survey on breastfeeding was carried out on patients with ARDs who had ever been pregnant, belonging to the Pregnancy and Reproductive Health Clinic for Rheumatic Diseases (CEER) of the University Hospital 'Dr. José Eleuterio González', in Mexico.

Results
A total of 63 patients were included, with a mean age of 38.84 (±7.49). The diagnosis most reported was rheumatoid arthritis with 35 (55.6%), followed by systemic lupus erythematosus with 9 (14.3%). The urban area was the most common place of residence with 61 (96.8%). College was the most predominant education level with 33 (52.4%). The sociodemographic and breastfeeding characteristics are found in Table 1. Of the patients, 49 (77.8%) informed having breastfed their last child. Regarding the duration, 3 (6.1%) reported having breastfed for less than 1 month and 24 (49%) for less than 6 months, with the cessation of milk production being the main cause of abandonment with 10 (37.1%) in those who breastfed for less than 6 months. Of the 14 (22.2%) patients who did not offer to breastfeed, the most frequent reason they described was low milk production with 4 (28.6%), followed by their illness with 3 (21.4%). The other reasons can be observed in Figure 1.

Conclusions
Most of the surveyed patients with ARDs provided breastfeeding, however, more than half of them discontinued it before 6 months, with cessation of milk production being the most frequent reason.

PO5:52 | A multidisciplinary project for the emotional health screening of pregnant and postpartum women with autoimmune rheumatic diseases: Preliminary results

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Citation
Bani, C., Matthey, S., Vedova, A.M.A., Lucariello, S., Parzani, E., Terusi, G., Crisafulli, F., Pedretti, E., Loardi, C., Andreolassi, I., Lini, D., Nalli, C., Gerardi, M.C., Lazzaroni, M.G., Semeraro, P., Fredi, M., Filippini, M., Taglietti, M., Zatti, S., Ramazzotto, F., Franceschini, F., Andreoli, L., Tincani, A., Beretta, E. A multidisciplinary project for the emotional health screening of pregnant and postpartum women with autoimmune rheumatic diseases: Preliminary results.

Background

The perinatal period involves important somatic, affective and relational changes and is therefore a phase of particular psychological complexity. It is known that motherhood is often associated with an increased risk of

depression and anxiety, which can have important consequences for the mother, the family and the child's development. This risk may increase in the presence of specific conditions, including that of autoimmune rheumatic diseases (ARD). The literature in this area is scarce, but current data indicate that women with rheumatological disease may have high levels of depression and anxiety during and after pregnancy, due to the increased likelihood of worsening physical symptoms and changes in their ARD treatment.

Purpose

The Psychology Service in the Obstetrics Area of the Spedali Civili of Brescia, in collaboration with the Rheumatology Clinic and the University of Brescia, is implementing and evaluating an emotional health screening program for perinatal women with ARD.

Methods

All women attending the Rheumatology Clinic for their pathology are offered emotional health screening using validated self-report measures (GAD-2, Whooley, EPDS, MGMQ). Women complete these at each visit, up to 7 times from pregnancy to 1-year postpartum. Women who screen positive at any point are then offered a follow-up clinical assessment interview, with appropriate interventions if required.

Results

To date (April 2023), 41 patients have been recruited, 13 of whom have reached the postpartum stage. 24 (59%) of these women screened positive on at least one occasion, on one or more of the instruments. Of these screen positive women, 4 accepted treatment by the Psychology Service; 4 declined; 4 were already receiving treatment privately; 10 were negative at the follow-up clinical assessment interview; 1 declined the follow-up assessment interview, and 1 woman had a miscarriage without wanting further help from the service.

Conclusions

The preliminary data from this study illustrate the clinical application, and the importance, of introducing routine emotional health screening in women with ARD. In addition the data will enable the clinical service to decide which screening measure/s are suitable for this population, and for the Service.

PO5:55 | Efficacy of gonadotropin-releasing hormone agonist (GNRH-A) in ovarian preservation in women with Systemic Lupus Erythematosus (SLE) receiving cyclophosphamide (CYC)

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Citation
Chu, J., Abid, D., Manna, Z., Subrata, P., Ochoa, I., Wu, Y., Naqvi, S.A., Goyal, S., Hooda, L., Hasni, S. Efficacy of gonadotropin-releasing hormone agonist (GNRH-A) in ovarian preservation in women with Systemic Lupus Erythematosus (SLE) receiving cyclophosphamide (CYC).

Introduction
SLE female patients with severe disease manifestations are treated with CYC which causes ovarian cytotoxicity. GnRH-a is co-administered with CYC to preserve ovarian function and reproductive potential. However, there's lack of evidence to support this use of GnRH-a. We conducted a retrospective study and questionnaire of SLE patients who received CYC with or without GnRH-a to evaluate its efficacy in preserving ovarian function.

Methods
Review of medical records resulted in 50 female SLE patients treated with CYC who were< 40 years old at the time of treatment: CYC only (n=20) =group 1, CYC and GnRH-a (n=30) =group 2. These patients were age/gender-matched with 50 SLE patients not treated with CYC =group 3. Data about demographic, SLE disease activity, damage accrual, cumulative CYC exposure and pregnancy outcomes was collected by chart review. Self-reported questionnaires were used to collect data assessing menses cycles, pregnancies and their outcome or infertility. Premature ovarian insufficiency (POI) defined as menopause prior to 40 years of age.

Results
There was no significant difference in SLE disease activity, baseline demographics, total damage accrual and other clinical parameters between groups 1 and 2. The mean cumulative CYC dose was 1.2g (group 1) and 1.5g (group 2) (p=0.16). 59/100 subjects completed the questionnaire (Group 1=13, Group 2=20, Group 3=26). POI was reported by 2 subjects in each of 3 groups (p= 0.62). Number of pregnancies mean (SD) group 1 =2(1.6), group 2 =1.2(1.4), group 3 =1.3(1.4) (p=0.18). More miscarriages reported in group 1 compared to groups 2 and 3 (p=0.015).

Conclusions/Implications

Our preliminary data suggests better pregnancy outcomes with use of GnRHa, but impact on fertility status or ovarian function in SLE patients on CYC was not significant. Data collection for this study is ongoing, but prospective studies are needed to better understand impact of GnRHa on preserving ovarian function.

PO5:57 | The clinical presentation and management of 3M syndrome in pregnancy

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Citation
Mouyis, M., Molloholli, M., Curry, R. The clinical presentation and management of 3M syndrome in pregnancy.

We describe a 28-year-old female with 3M syndrome who presented to the pre-pregnancy counselling clinic. Her husband (her first cousin) was also affected, giving a 100% probability of an affected child. Following genetic counselling clinical she decided she wanted to attempt pregnancy. Her phenotypic manifestation was that of small stature (4'9), scoliosis and fixed flexion deformities of the 5th digit of each hand. Her medical history included hhypothyroidism and B thalassemia trait, and a family history of diabetes (sister and father). She was counselled regarding the risk of a small pelvis - namely fetal malpresentation and labour dystocia with an increased risk of requiring delivery by Caesarean section, of fetal growth restriction and of the potential for difficulty with neuraxial anaesthesia. The 1:4 chance of the fetus being affected with B thalassemia was also discussed. The couple

underwent successful IVF treatment (for male factor subfertility). Care was shared between her local hospital and the tertiary referral centre. Serial growth scans revealed a small for gestational age baby with short limbs, as would be expected. Invasive testing for B-thalassaemia was declined. At 37+5 weeks the estimated fetal weight was around the 3rd centile with abnormal fetal Doppler studies and induction of labour was advised.

A male infant weighing 2140g (<3rd centile) at 38+5 weeks was delivered by Caesarean section for delay in the first stage of labour, under general anaesthetic. Birth was complicated by a 1.2L postpartum haemorrhage.

Conclusion

3M syndrome is a rare autosomal growth disorder presenting with musculoskeletal manifestations including short stature, craniofacial abnormalities, clinodactaly and thin bones. (1) Male babies may be affected by hypospadias and hypogonadism. It may be recognised by the typical features of a triangular shaped face, underdeveloped midface, fleshy lips and prominent forehead. (2) It is not a well recognised condition in the UK and there is a paucity of literature pertaining to pregnancy outcomes.(2)

References

(1) https://rarediseases.org/rare-diseases/three-m-syndrome/

(2) Cusimano MC et al. Pregnancy in 3M syndrome. J Obstet Gynaecol. 2018 Apr;38(3):421-422

PO5:58 | Art in rheumatic diseases: Data from a monocentric experience

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Citation
Ruffilli, F., Padovan, M., Cirilli, F., Morano, D., De Vito, M., Govoni, M. Art in rheumatic diseases: Data from a monocentric experience.

Purpose

Women with rheumatic diseases (RDs) have on average an increased incidence of infertility than the general population, related to the disease activity and immunosuppressive therapies in addition to the traditional risk factors.

The use of assisted reproductive technologies (ARTs) is increasing, with a different success rate depending on the disease itself and the type of ART protocol used.

Methods

We retrospectively analysed the women followed at our rheumatology unit who underwent ARTs in the last 13 years.

Results

We examinated 12 women with RDs and a prolonged time to pregnancy, undergoing 35 cycles of ARTs for female, male, mixed or idiopathic infertility. 5 patients had a decreased ovarian reserve. Demographic data are detailed in Tab.1. 9 women attended rheumatological counseling before pregnancy. There were performed 27 homologous and 8 heterologous procedures; among the former, 5 IUI, 16 IVF and 6 ICSI. The mean number of cycles per patient was 2.9. Ovarian stimulation was done in 4 patients. The success rate was 29.6% for homologous and 62.5% for heterologous ARTs. 18 pregnancies were reported: 13 were obtained with ARTs, while 5 patients had pregnancies on a natural menstrual cycle, despite attempts of ineffective ARTs. 10 pregnancies concluded with a delivery, 2 pregnancies are still ongoing, while in 6 cases an involuntary abortion occurred. A prophylactic therapy was administered in 11 women: low-dose aspirin (LDA), prophylactic dosage of heparin and LDA plus a prophylactic dosage of heparin in 3, 2 and 6 patients, respectively. 3 maternal complications did occur and 1 ovarian hyperstimulation syndrome during IVF; no cases of thrombosis were observed. Disease flares occurred in 3 pregnancies (23%), requiring a therapy upgrade: 2 arthritis flares and 1 SLE flare. There were fetal and neonatal complications in 3 cases.

TABLE 1

DEMOGRAPHIC DATA	N		
SLE	5		
UCTD	2		
SS	1		
RA	2		
PsA	1		
AS	1		
Total RDs	**12**		
Age at diagnosis (yrs, mean)	24.7		
COMORBIDITY	**N (%)**		
Inherited thrombophilia	3 (25%)		
Factor II mutation	2		
Factor V Leiden mutation	1		
CV risk factor	3 (25%)		
Gynecological disease	5 (41.7%)		
Endometriosis	3		
PCOS	2		
Decreased ovarian reserve	5 (41.7%)		
Another autoimmune disease	6 (50%)		
Autoimmune thyroiditis	5		
Celiac disease	1		
PREGNANCY CHARACTERISTICS			
	N	**Success (N%) ***	**Spontaneous abortions (N)**
Total ARTs	**35**	**13 (37.1%)**	**4**
Homologous ARTs	27	8 (29.6%)	3
IUI	5	0	0
IVF	16	6 (37.5%)	2
ICSI	6	2 (33.3%)	1
Heterologous ARTs	8	5 (62.5%)	1
Pregnancy on a natural menstrual cycle **	**5**	/	**2**
	ARTs (N)	**Success (N%) ***	**Pregnancy on a natural menstrual cycle (N) ****
Type of infertility (N)			
Female 4 (33.3%)	12	6 (50%)	1
Male 1 (8.3%)	4	1 (25%)	0
Mixed 2 (16.7%)	6	3 (50%)	1
Idiopathic 5 (41.7%)	13	3 (23.1%)	3
RDs			
SLE	13	6 (37.5%)	1
UCTD	6	4 (66.7%)	1
AS	4	0	1
RA	7	2 (28.6%)	0
PsA	3	1 (33.3%)	1
AS	2	0	1
COMPLICATIONS AND OUTCOME	**N**		
Disease flare during pregnancy	**3**		
Articular	2 (1 RA, 1 AS, 1 SLE)		
Cutaneous	1 (SLE)		
Renal	1 (SLE)		
Ovarian hyperstimulation syndrome	**1**		
Maternal complications during pregnancy and delivery	**5**		
Gestational diabetes	1		
Hypertension	2		
Hypothyroidism	1		
Massive hemorrhage	1		
Fetal and neonatal complications	**3**		
Malformative syndrome	1		
Anhydramnios and fetal growth restriction	1		
PROM	1		

SLE: systemic lupus erythemathosus; UCTD: undifferentiated connective tissue diseases; SS: Sjogren syndrome; RA: rheumathoid arthritis; PsA: psoriasic arthritis; AS: ankylosing spondilitis; RDs: rheumatological diseases; CV: cardiovascular; PCOS: polycystic ovary syndrome; ARTs: assisted reproductive technology; IUI: Intrauterine insemination; IVF: in vitro fertilization; ICSI: Intracytoplasmic sperm injection; PROM: premature rupture of the membranes.

**Completed pregnancies, ongoing pregnancies and natural abortions*
***Despite previous ARTs*

Conclusions

Regarding the efficacy, data show a lower success rate for IUI and higher efficacy for II level techniques (IVF and ICSI), both homologous and heterologous, compared to data in the healthy population collected in the European ART registry. There are few evidence about the efficacy of ART in specific RDs, but they look in agreement with our results.

PO5:61 | Management of leflunomide therapy before pregnancy: A case report

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Citation
Pata, A.P., Gonzalez, E.G., Baldi, C., Gentileschi, S., Bardelli, M., Bellisai, F., Cantarini, L., Frediani, B. Management of leflunomide therapy before pregnancy: A case report.

Purpose

Leflunomide (LFN) is controindicated in pregnancy because its metabolite A771726 may cause serious birth defects. The long half-life of LFN should be considered if a pregnancy is planned. For women receiving LFN and who wish to become pregnant, one of the following procedures is recommended to make sure that the foetus is not exposed to toxic concentrations of A771726 (target concentration below 0.02 mg/L): waiting period of at least two years or washout procedure.

Materials and Methods

We present a report of a rheumatoid arthritis (RA) patient treated with LFN in preconception period.

Results

A 32-year-old patient, suffering from RA, was treated with LFN 20 mg a day. LFN was discontinued in November 2021 considering pregnancy wish.

The patient referred to our clinic only 4 months after LFN discontinuation already 9° week pregnant. Together with obstetricians we informed the patient about LFN teratogenic potential, even when taken in preconception period, given to its long half-life. In fact, it is considered toxic concentration of A771726 above 0.02 mg/L. The patient decided to carry on the pregnancy. We considered a small prospective study in women who became inadvertently pregnant while taking LFN for no more than three weeks after conception and followed a drug elimination procedure. No significant differences were observed in the overall rate of major structural defects between this group of women and the control groups. Based on this experience and according to ACR 2020 guidelines, we also offered washout procedure to our patient. We requested the specific dosing kit, that consisted of two measurements 14 days apart. A771726 plasmatic concentration in the first assay was 0.04 mg/L (above safety target concentration). Concurrently, the patient underwent the washout procedure, taking colestyramine 8 g 3 times daily for 11 days. The second assay was performed 14 days later and showed A771726 plasmatic concentration declined to 0.01 mg/L (below safety target concentration).

Conclusions

Patients in childbearing age should receive an adequate preconception counselling aimed to evaluate maternal disease activity and drug history. If LFN is administrated in preconception period, it is recommended to run plasmatic concentration test and suggest washout procedure.

PO5:62 | The management of pregnancy in autoimmune rheumatic diseases: Analysis of 815 pregnancies from the prospective nationwide p-rheum. It study (The italian registry of pregnancy in the rheumatic diseases)

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Background
Pregnancy is a topic of fundamental importance for women living with autoimmune rheumatic diseases (ARD). The P-RHEUM.it study was designed as a nationwide, web-based longitudinal observational cohort study to collect data about pregnancy in ARD in 27 centers in Italy. The study started in May 2018 and has been supported by the Italian Society for Rheumatology.

Methods
Pregnant patients with a definite rheumatic disease according international criteria were enrolled up to gestational week (GW) 20. The course of maternal disease activity, the use of medications, fetal and maternal complications, and the quality of life (EuroQoL questionnaire) were collected for each trimester, as well as pregnancy outcome, mode of delivery, neonatal complications, and maternal and children's follow-up to

6 months after delivery, including the screening for post-partum depression by means of EPDS (Edinburgh Postnatal Depression Scale).

Results

As of March 2023, 1077 pregnancies had been enrolled, 262 (24%) ongoing and 815 (76%) with outcome. Pregnancy loss occurred in 76 (7%) cases (65 spontaneous miscarriages; 11 voluntary terminations). Live births were 723 (88.7%), perinatal death occurred in 6 (0.7%) cases. Table 1 reports on the group of 723 live births, along with subgroups of Rheumatoid Arthritis (RA) and Systemic Lupus Erythematosus (SLE), the two most represented diseases. Regarding treatments among live births, 238 (33%) pregnancies were exposed to corticosteroids, 363 (50%) to hydroxychloroquine, 87 (12%) to csDMARDs, 114 (16%) to TNF inhibitors, 3 (0.4%) to non-TNFi bDMARDs, 454 (63%) to low dose acetylsalicylic acid, and 197 (27%) to heparin.

TABLE 1

PREGNANCIES WITH LIVE BIRTHS, EXCLUDING PERINATAL DEATHS	Total pregnancies N=723	RA pregnancies N=100	SLE pregnancies N=134
Age at conception (years)	34 (30 - 37)	34 (32 - 38)	34 (30 - 36)
Disease duration (years)	6.5 (2.7 - 11.3)	7 (4.1 - 11.6)	9.1 (5.4 - 15.4)
Caucasian	641 (88.7%)	82 (82%)	112 (83.6%)
Never smokers	530 (73.3%)	75 (75%)	100 (74.6%)
Body Mass Index >30	66 (9.1%)	9 (9%)	8 (6%)
Arterial Hypertension	13 (1.8%)	0 (0%)	4 (3%)
Time to pregnancy (months)	3 (1 - 7)	2 (0 - 6)	2.5 (0 - 8.8)
Physician-reported flares in the 12 months prior to conception	150 (20.7%)	31 (31%)	23 (17.2%)
Physician global assessment at enrolment (VAS 0-100)	3 (0 - 11)	3 (0 - 20)	4 (0 - 10)
Patient global health at enrolment (VAS 0-100)	81 (70 - 91)	90 (70 - 91)	90 (78 - 93)
EuroQoL at enrolment (-1.6 – 1)	1 (0.8 - 1)	1 (0.8 - 1)	1 (0.8 - 1)
Flares during pregnancy	110 (15.2%)	20 (20%)	23 (17.2%)
Hypertensive disorders*	12 (1.7%)	1 (1%)	6 (4.5%)
Delivery at term (≥37 GW)	611 (84.5%)	85 (85%)	109 (81.3%)
Spontaneous vaginal delivery	244 (33.7%)	30 (30%)	33 (24.6%)
Congenital malformations	17 (2.4%)	3 (3%)	3 (2.2%)
Small for gestational age (SGA) neonate	35 (4.8%)	2 (2%)	13 (9.7%)
Breastfeeding in the first 4 weeks after delivery	501 (69.3%)	64 (64%)	86 (64.2%)
EPDS score at risk of post-partum depression (30-60 days after delivery)	49 (6.8%)	2 (2%)	7 (5.2%)

*Continuous variables are expressed as median (interquartile range); *gestational hypertension/preeclampsia/HELLP syndrome/eclampsia.*

Conclusion

Multiple factors may have contributed to the high rate of live births, including a low frequency of general risk factors and a good disease control before and during pregnancy thanks to the use of anti-rheumatic drugs. SLE pregnancy was affected by a higher frequency of complications as compared to RA pregnancy. Nearly two thirds of patients breastfed in the first month after delivery. For the first time, data about the screening questionnaire for post-partum depression were collected, showing that nearly 7% of patients were at risk at 1-2 months after delivery.

PO6:63 | Fetal neurosonographic findings in patients with autoimmune diseases: A retrospective case-control study

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Citation
Santana-Domínguez, M., Eixarch, E., Espinosa, G., Castellanos, A., Borrell, M., Baños, N. Fetal neurosonographic findings in patients with autoimmune diseases: A retrospective case-control study.

Purpose

Little is known about the neurosonographic findings of pregnancies complicated by maternal autoimmune diseases. The objective of this study is to evaluate the presence of fetal neurosonographic pathological findings in

patients affected by Systemic Lupus Erythematosus (SLE) or Antiphospholipid Syndrome (APS). Several studies suggest that complement disregulation and the presence of antiphospholipid antibodies can interfere with adequate fetal brain development.

Methods

A retrospective case-control study was conducted. Patients affected by either SLE, SLE with antiphospholipid antibodies positivity or APS underwent a neurosonography assesment if abnormal findings were detected in routine ultrasound screening. They were compared with healthy pregnant women who underwent a neurosonography as part of a research study protocol matched by gestational age. Biparietal diameter (BDP), cephalic circumference (CC), transcerebellar diameter (TDC), cerebellar vermis height, corpus callosus length and lateral ventricles diameter were measured in both groups.

Continous variables are presented as median and inter-quartile ranges according to sample size. Categorical variables are presented as frequencies and percentages. Chi2 test was performed to check differences between cases and controls. P-value is considered significant if <0.05.

Results

A total of 23 patients with the aforementioned autoimmune disease were included and compared with 55 healthy pregnant women. Median gestational age at the time of neurosonography in the cases was 31.5 weeks (29.4 –33). All controls had neurosonography performed during week 30-31.

The number of patients who presented a BDP, CC, TDC, corpus callosum length and cerebellar vermis height < 5th percentile was calculated. Results are displayed in Table 1. Cases with autoimmune diseases had significantly smaller BDP, CC and TDC that were below the 5th percentile compared to control group.

No significant differences existed in cerebellar vermis heights and corpus callosum lengths across groups. None of the patients presented ventriculomegaly.

TABLE 1

	Cases (n=23)	Control (n=55)	p-value
Mother's Age, median (IQR) [range]	35 (34-38) [26-43]	32 (30-34)	0.23
Body mass index, median (IQR)	22.4 (21.2-23.8)	23 (20.2-25)	0.4
Gestational Age at ultrasound, median (IQR) [range]	31.5 (29.4 – 33) [24-34.2]	30.2 (30.0-31.2)	0.07
Neurosonographic findings			
DBP, median (IQR)	77 (73-80)	78.8 (76.1-80.4)	
DBP percentile, median (IQR) [range]	2 (1-24)	34 (14-54)	
DBP percentile <5, n (%)	15 (65.2%)	6 (10.9)	<0.001
Cephalic circumference, median (IQR)	287 (272-296)	290.2 (283.8-298.1)	
CC percentile, median (IQR)	28 (10-75)	81 (63-94)	
CC percentile<5, n (%)	3 (13%)	0 (0)	0.006
DTC, median (IQR)	38.6 (36-42)	37.9 (36.6-39.8)	
DTC percentile, median (IQR)	42 (24-66)	58 (38-84)	
DTC percentile<5, n (%)	3 (13%)	1(1.8)	0.04
Cerebellar vermis height, median (IQR)	18.9 (16.7-21)	18.9 (17.9-19.8)	
CVH percentile, median (IQR)	34.5 (7-62)	46 (21-69)	
CVH percentile<5, n (%)	5 (21.7%)	4 (7.3)	0.06
Corpus callosum length, median (IQR) [range]	36.5 (35.1-40) [28.7-43]	38.4 (36.5-39.7)	
Corpus callosum percentile, median (IQR)	27 (7-42)	46 (18-66)	
Corpus callosum percentile<5, n (%)	5 (21.7%)	6 (10.9)	0.21
Right lateral ventricle, median (IQR)	4.3 (3-5.1)	5.6 (4.7-9.2)	
RLV percentile, median (IQR)	38 (21-50)	58 (46-96)	NA
Left lateral ventricle, median (IQR)	4.4 (3-5.6)	6.0 (4.5-10)	
LLV percentile, median (IQR)	40 (21-58)	66 (42-99)	NA

Conclusions

Overall, our results suggest maternal autoimmune disease might negatively affect fetal neurodevelopment, as shown by the finding of smaller fetal brain biometries. A higher IUGR incidence in these patients might also contribute to this damage. To our knowledge, this is the first neurosonography findings report. Future prospective studies should aim to replicate these results in larger samples of patients.

PO6:64 | Bleeding and anaesthetic complications related to antithrombotic therapy in pregnant women with APL-related disorders

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Citation

Balagué, M.B., Santana, M., Castellanos, A.S., Espinosa, G., Baños, N. Bleeding and anaesthetic complications related to antithrombotic therapy in pregnant women with APL-related disorders.

Purpose

To evaluate the safety of antithrombotic treatment in pregnant women with antiphospholipid-related (aPL) disorders.

Methods

This is an observational study performed in Hospital Clínic of Barcelona. Women followed in the unit for pregnant women with autoimmune diseases from 2017 to 2022 with aPL antibodies and associated obstetric/thrombotic morbidity, under antithrombotic treatment (heparin, aspirin or both), were included. Demographic characteristics, antithrombotic regimens, mode of delivery, anaesthetic considerations and bleeding complications were retrospectively reviewed. Association between these variables was analyzed. P-value was considered significant if <0.05.

Results

Data from 78 patients was analysed; median age was 39, 62.9% were nulliparous and 25.7% obese.

All women (100%) were receiving aspirin peripartum, while 73.1% were under combined therapy. 12 (15.4%) women were admitted following spontaneous onset of labour, whereas 66 (84.6%) underwent planned induction of labour. Among these 12 patients, 2 (16.6%) were not eligible for neuroaxial anaesthesia because of a short-antithrombotic therapy discontinuation. By contrast, only one patient who underwent planned induction was not eligible for neuroaxial anesthesia, due to thrombocytopenia (1.5%). 46.2% women had vaginal deliveries, 51.3% c-sections and 2.6% operative vaginal deliveries. A total of 15 haemorrhagic events occurred in the retrospective cohort, with 7 (9%) defined as minor and 8 (10.3%) as major. 11 (14.1%) placental haematomas and one vaginal haematoma were reported in the cohort. Neither neuroaxial haematomas nor postpartum thrombotic events were encountered.

Bleeding complications did not differ between the group that was receiving aspirin alone and that with combined therapy (p=0.42 and p=0.77 for minor and major haemorrhagic events, respectively). No significant differences were observed in neither placental nor vaginal haematomas. Rates of spontaneous onset of labour and eligibility for neuroaxial anaesthesia were similar among groups. Platelet count and type of delivery were not associated with more bleeding complications.

TABLE 1: Demographic characteristics, treatment regimens and obstetrical and anaesthetic outcomes of the 78 patients with aPL-related disorders

DEMOGRAPHIC CHARACTERISTICS	
Age (years, mean)	39
Nulliparity	49 (63%)
BMI > 30	20 (26%)
Autoinmune disease	32 (41%)
Type of autoinmune disease	
- Lupus	16 (20%)
- Other	16 (20%)
TREATMENT REGIMENS	
AAS peripartum	78 (100%)
HBPM peripartum	57 (73%)
HBPM + AAS peripartum	57 (73%)
OUTCOMES	
Planned termination	66 (85%)
Eligible for neuroaxial anaesthesia	75 (96%)
Type of anaesthesia	
- Local	1 (1%)
- Epidural	47 (60%)
- Spinal	28 (36%)
- Intravenous	1 (1%)
- Inhalatory	1 (1%)
Type of delivery	
- Vaginal	36 (46%)
- C-section	40 (51%)
- Operative vaginal delivery	2 (3%)
Minor postpartum haemorrhage	7 (9%)
Major pospartum haemorrhage	8 (10%)
Placental heamatoma	11 (14%)
Vaginal haematoma	1 (1%)
Neuroaxial haemathoma	0 (0%)

Values are expressed as number (percentage) unless otherwise indicated.

Conclusions

Our findings support the safety of antithrombotic treatment during pregnancy and peripartum period in women with aPL-related disorders, both in terms of anaesthetic and obstetrical spheres. Spontaneous onset of labour does not appear to be associated with bleeding or anaesthetic complications. Therefore, routinary planned induction of labour should not be offered solely due to antithrombotic treatment.

PO6:65 | The beneficial effects of low-dose aspirin, low molecular weight heparin and hydroxychloroquine on obstetrical outcomes and placental histology in patients with antiphospholipid antibody syndrome

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Canti, V., Girardelli, S., De Lorenzo, R., Pozzoni, M., Tenace, N.P., Luciano, R., Pasi, F., Castiglioni, M.T., Cavoretto, P., Rovere-Querini, P. The beneficial effects of low-dose aspirin, low molecular weight heparin and hydroxychloroquine on obstetrical outcomes and placental histology in patients with antiphospholipid antibody syndrome.

Abnormal placentation plays a crucial role in the pathogenesis of obstetric morbidity in antiphospholipid antibodies syndrome (APS). The placenta is the main target of anti-phospholipid antibodies. Standard treatment for APS during pregnancy includes LDA plus LMWH and, in refractory cases, hydroxychloroquine. Recently, five main pathological lesions in the placenta of APS patients were identified: placental infarction, decidual vasculopathy, decidual inflammation, increase of syncytial knots due to syncytiotrophoblast death, and decrease in vasculosyncytial membranes.

The aim of this study was to evaluate obstetrical outcomes in APS patients and placental histology in a subgroup.

We recruited 130 APS pregnant patients between 2009 and 2022 attending the High-risk Obstetrics Clinic of San Raffaele Hospital, Milan. Histological analyses of 25 placentas of spontaneously conceived from January 2017 to May 2022 were also performed.

A total of 130 pregnancies in APS were included and previous obstetric history collected. All patients were on LDA and 110/130(85%) on LDA+LMWH. Twenty-six patients (20%) also received HCQ. In the latter group signs of placental inflammation occurred with lower frequency, although results did not reach statistical significance. 19/25(76%) placentas analyzed were of primary APS, while 6 patients had APS secondary to systemic lupus erythematosus (SLE). All patients were treated with LDA+LMWH. In patients with concomitant SLE or with refractory APS, HCQ was added. Histological analysis of placental tissue revealed increased syncytial knots in 17/25(68%) placentas, decreased vasculosyncytial membranes in 11/25(44%), infarction

in 8/25(32%), presence of macrophages and decidual inflammation in 2/25(8%), and atherosis or reduction of spiral artery remodeling in 3/25(12%). We also observed at least two coexisting placental lesions in 12/25(48%) placentas. Furthermore, we found a positive association between the titer of anti-cardiolipinIgG and anti-phosphatidylserine/prothrombinIgG and the presence of infarcted areas at placental histology (p-value<0.05). Moreover, in the placenta of patients treated with HCQ we did not observe any decidual inflammation at histology.

We found pathological associations between placental histology, clinical status and treatment received during pregnancy. The obstetrical outcome in APS who underwent close monitoring was optimal. It is thus tempting to speculate that HCQ may have beneficial effects on pregnancy by decreasing the risk of deciduitis in patients with APS.

PO6:66 | Comparing pregnancy outcomes in patients with systemic lupus erythematosus and undifferentiated connective tissue disease: A descriptive cohort study

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Citation

Munoz, C., Farinha, F., McDonnell, T., Bari, H.J., Nguyen, H., Williams, D., Alijotas-Reig, J., Giles, I. Comparing pregnancy outcomes in patients with systemic lupus erythematosus and undifferentiated connective tissue disease: A descriptive cohort study.

Introduction

Despite a well-established association with Adverse Pregnancy Outcomes (APO) in Systemic Lupus Erythematosus (SLE) patients, there is conflicting evidence as to whether this association also exists in patients with Undifferentiated Connective Tissue Disease (UCTD). Therefore, we carried out a retrospective cohort study comparing pregnancy outcomes in women with SLE and UCTD.

Methods

Retrospective data was collected from SLE and UCTD pregnant patients whom attended the combined Rheumatology-Obstetric clinic at University College London Hospital from 2006 to 2019. SLE patients included in this study fulfilled the standard classification criteria. UCTD patients included had displayed signs and symptoms suggestive of a CTD, but not fulfilling the criteria for a defined CTD and persistent positivity of antinuclear antibodies.

Results

Our cohort included a total of 71 pregnant women (n=51 SLE and n= 20 UCTD) which consisted of predominantly Caucasian women (>55%). SLE diagnosis was more frequent than UCTD (72% vs 28%). In the SLE group, mucocutaneous and/or articular involvement was the most common (77%), followed by lupus nephritis (33%). The main features at the UCTD group were arthralgia (78%) and skin rash (39%).

Table 1 demonstrates both SLE and UCTD pregnancies were mainly planned (81% vs 77%, respectively) and the patients had inactive disease at conception (96% vs 89%). Medications including Hydroxychloroquine, steroids and low-dose aspirin were found to be significantly administered more frequently in the SLE patients than UCTD patients.

Table 2 shows that number of disease flares occurring during pregnancy and/or puerperium were similar between both groups.

TABLE 1: Disease characteristics and baseline variables (at the time of latest pregnancy) in patients with SLE and UCTD

		SLE N=51	UCTD N=20	P
Ethnicity	**White**, N (%)	24 (47)	16 (80)	
	Black, N (%)	6 (12)	2 (10)	**0.037**
	Asian, N (%)	14 (28)	0 (0)	
	Other, N (%)	7 (14)	2 (10)	
Age at pregnancy (y), median (IQR)		35 (7.0)	35 (6.8)	0.349
Disease duration (y), median (IQR)		10.5 (11.0)	5.0 (11.0)	0.060
Body mass index), median (IQR)		22.8 (4.9)	21.6 (1.8)	0.162
Smoker, N (%)		0 (0)	0 (0)	NA
SLE organ involvement, N (%)				
Mucocutaneous and/or articular		39 (77)	NA	
Renal		17 (33)	NA	
Neurologic		3 (6)	NA	
Haematological		3 (6)	NA	
Serology at pregnancy, N (%)				
ANA		47 (97)	20 (100)	1.000
Low C3 and/or C4		5 (10)	1 (6)	1.000
Anti-dsDNA		12 (25)	0 (0)	**0.014**
Anti-Ro		31 (62)	5 (25)	**0.005**
Anti-La		3 (6)	2 (10)	0.619
Anti-RNP		8 (16)	5 (25)	0.496
Lupus anticoagulant		3 (6)	0 (0)	0.552
Anti-cardiolipin		4 (8)	2 (10)	1.000
Anti-Beta 2 Glycoprotein I		5 (10)	2 (10)	1.000
Antiphospholipid Syndrome, N (%)		3 (6)	1 (5)	1.000
Other autoimmune disease, N (%)		11 (22)	5 (25)	0.760
Hypertension, N (%)		5 (10)	0 (0)	0.312
Diabetes, N (%)		2 (4)	0 (0)	1.000
Thyroid disorders, N (%)		2 (4)	4 (20)	**0.049**
Treatment during pregnancy, N (%)				
Hydroxychloroquine		44 (86)	7 (35)	**<0.001**
Steroids		25 (49)	1 (5)	**0.001**
≤ 7.5 mg prednisolone		17 (33)	1 (5)	
> 7.5 mg prednisolone		8 (16)	0 (0)	
Azathioprine		16 (31)	2 (10)	0.063
Calcineurin inhibitors		3 (6)	0 (0)	0.554
Low-dose aspirin		25 (69)	8 (40)	**0.026**
Low-molecular weight heparin		13 (26)	2 (10)	0.204
Active disease at conception, N (%)		2 (4)	2 (11)	0.296
First pregnancy, N (%)		12 (24)	3 (15)	0.531
Planned pregnancy, N (%)		38 (81)	13 (77)	0.732
History of infertility, N (%)		15 (30)	2 (12)	0.200

SLE: Systemic Lupus Erythematosus; UCTD: undifferentiated connective tissue disease

TABLE 2: Pregnancy outcomes in patients with SLE and UCTD

	SLE N=51	UCTD N=20	P
Disease flare during pregnancy, N (%)	3 (6)	2 (10)	
Disease flare postpartum, N (%)	4 (8)	0 (0)	
Vaginal delivery, N (%)	20 (41)	12 (60)	0.147
Live birth, N (%)	49 (96)	20 (100)	1.000
Adverse pregnancy outcome, N (%)	8 (16)	1 (5)	0.429
Preterm birth, N (%)	3 (6)	0 (0)	
Intrauterine growth restriction, N (%)	2 (4)	0 (0)	
Pre-eclampsia, N (%)	1 (2)	1 (5)	
Miscarriage, N (%)	2 (4)	0 (0)	

SLE: Systemic Lupus Erythematosus; UCTD: undifferentiated connective tissue disease

Conclusions

We found a similar prevalence of APO between SLE and UCTD pregnancies.

The prevalence of SLE pregnancy complications arising in our SLE cohort was found to be lower compared to other previously published cohorts. The reasons giving rise to our findings was most likely due to a high percentage of women having low disease activity at conception, pregnancies were planned, and hydroxychloroquine usage during pregnancies. Our findings highlight the importance and need of pregnancy planning and the maintenance of adequate treatments during pregnancy to ensure low disease activity is maintained/achieved in SLE and UCTD pregnancies.

PO6:67 | Pregnancy outcomes in Systemic Lupus Erythematosus: A multicentric experience

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Citation
Santos, I., Nicolau, R., Beirão, T., Guimarães, F., Aguiar, F., Ganhão, S., Rodrigues, M., Rocha, A., Monteiro, S., Aidos, J., Santos, J., Monteiro, P., Martins, N., Brito, I. Pregnancy outcomes in Systemic Lupus Erythematosus: A multicentric experience.

Purpose
Pregnancy in women with Systemic Lupus Erythematosus (SLE) carries a higher materno-fetal risk compared to healthy women. The purpose of this study was the evaluation of pregnancy outcomes in SLE patients.

Methods
Retrospective study including pregnant women with SLE followed in two Portuguese Rheumatology departments. Demographic and clinical data were collected including pregnancy risk factors, disease activity according to SLEDAI-2K and materno-fetal outcomes.

Results
Thirty pregnancies of 27 women were included. The average maternal age was 33.9 years, and the average disease duration was 81.6 months. Most of the patients (n=21; 77.8%) received preconception counselling, with 86.7% (n=26) presenting low or no disease activity at conception. Lupus nephritis was present in 20.0% (n=6) and antiphospholipid syndrome in 13.3% (n=4). In 7 pregnancies (23.3%) the patients were positive for anti-SSA antibodies, meeting criteria for Sjögren's syndrome in 3 (10.0%). 36.7% (n=11) had

TABLE 1: Comparable indicators between SLE patients' pregnancies and general Portuguese population's pregnancies

Indicators	Frequency in our study	Frequency in general Portuguese population
Maternal age ≥ 35 years-old	43.3%	29.5-33.2%[a]
Maternal age ≥ 40 years-old	16.7%	5.5-7.7%[a]
Primiparous women	36.7%	52.3%[a]
Miscarriage	16.7%	8-15%*[b]
Fetal growth restriction	30.4%	5-8%*[c]
Preeclampsia	0.0%	1.3%[d]
Prematurity	26.1%	8.0%[a]
Caesarean delivery	39.1%	33.1-36.2%[e]
Assisted vaginal delivery	17.4%	18.3-19.2%[e]
Newborn weight < 2500 g	26.1%	8.9%[a]
Newborn weight > 4500 g	0.0%	0.5%[a]

*Portuguese data unavailable

[a]Euro-Peristat Project. European Perinatal Health Report. Core indicators of the health and care of pregnant women and babies in Europe from 2015 to 2019.

[b]Linnakaari R, Helle N, Mentula M, et al. Trends in the incidence, rate and treatment of miscarriage-nationwide register-study in Finland, 1998-2016. Hum Reprod. 2019;34(11):2120-2128.

[c]Schlembach D. Fetal Growth Restriction - Diagnostic Work-up, Management and Delivery. Geburtshilfe Frauenheilkd. 2020 Oct;80(10):1016-1025.

[d]Palma Dos Reis CR, Serrano F, Fonseca MJ, Martins AT, Campos A, McMahon GM, Barros H. The fetal origins of disease: a prospective cohort study on the association of preeclampsia and childhood obesity. J Dev Orig Health Dis. 2022 Feb;13(1):68-74.

[e]Instituto Nacional de Estatística, PORDATA. Partos nos hospitais: total e por tipo 2016-2020.

antiphospholipid antibodies. 23.3% (n=7) were overweight and 16.7% (n=5) obese. In 23.3% (n=7) there was prior hypertension. Hydroxychloroquine was used in nearly all gestations (n=28; 93.3%) with two exceptional cases due to toxidermia and to low ophthalmic functional reserve. Azathioprine was used in 50% (n=15), tacrolimus in 3.3% (n=1) and corticosteroids in 60% (n=18). One pregnancy (3.3%) occurred under methotrexate suspended afterwards. Acetylsalicylic acid was used in 86.7% (n=26) and enoxaparin in 23.3% (n=7). Two patients (6.7%) with known lupus nephritis had a disease flare during pregnancy. 82.1% (n=23) of the pregnancies resulted in live births, the majority at full term (n=17; 73.9%) and non-instrumental vaginal deliveries (n=10; 43.5%). The average gestational age at birth was 37.6 weeks and the neonates' average weight was 2866g. A miscarriage rate of 16.7% (n=5) and a preterm delivery rate of 26.1% (n=6) were found. Fetal growth restriction (FGR) complicated 30.4% (n=7) of gestations and two serious maternal infections were reported. There were no cases of maternal, fetal or perinatal deaths, preeclampsia, neonatal lupus, fetal malformations, or postpartum disease flare.

Conclusions

Preconception counselling and management improvement have allowed SLE women to have better pregnancy outcomes similar to the general population, except for higher rates of FGR, prematurity and low birth weight.

PO6:68 | A Neonatal lupus case diagnosed with congenital heart block and reaching 34th week without additional complications: A case report

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Citation
Gulbezer, E.E., Bulbul, M.C. A Neonatal lupus case diagnosed with congenital heart block and reaching 34th week without additional complications: A case report.

Purpose

Neonatal lupus disease is an autoimmune disease that often presents with cardiac and skin findings and is caused by the transmission of maternal autoantibodies to the fetus(1). It has been found to be associated with anti-Ro and anti-Lo antibodies, and the development of complete heart block is the most serious complication of neonatal lupus disease. Dexamethasone (4-8mg/day), hydroxychloroquine, IVIG and plasmapheresis treatments can be started in patients with fetal heart block (2, 3). Fetal pacemaker implantation may be another treatment option for patients who do not improve despite

these treatments. Here, we present a case that was completed with IVIG treatment without any complications after fetal bradycardia was detected in an asymptomatic patient.

Case

A 24-week pregnant G1P0 patient with no known history of chronic disease was admitted to the rheumatology service due to the development of fetal bradycardia (AV complete block, ventricular rate 57/min) during follow-up. No significant feature was found in the familial history and physical examination of the patient, whose rheumatological examination did not reveal any features. Neonatal lupus was diagnosed in the patient who was found to be ANA +++ speckled, anti-Ro 52 +++, anti-Ro60 +++ and anti-La ++ positivity, and dexamethasone 2x1mg and hydroxychloroquine 2x200mg treatment was started. Due to the progression of fetal bradycardia under treatment, IVIG was administered at a dose of 0.4mg/kg/day for 5 days. Fetal heart failure did not develop in the patient who was followed up by the perinatology and pediatric cardiology departments. The baby reached the 34th week and after birth pacemaker was installed because of the AV block.

Conclusion

Neonatal lupus disease is an autoimmune disease that can cause severe morbidity and mortality by causing bradycardia and blocks in the fetus. Management of heart block in utero remains controversial and there are no official guidelines. Although it is thought to be irreversible after AV block develops, it is important to prevent complications. In our case, a healthy delivery was achieved at 34th week without complications, including congestive heart failure, arrhythmias, sudden death, and thromboembolic events.

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PO6:69 | A case of obstetric Antiphospholipid syndrome (APS) with multi-organ post-partum complications

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Citation
Abdullah, N., Binns, H., Datta, A., Mittal, S., Jeffery, R. A case of obstetric Antiphospholipid syndrome (APS) with multi-organ post-partum complications.

Purpose

Reflecting on Antiphospholipid syndrome (APS) outcome in a case of triple positive antiphospholipid antibody(aPL) carrier state without previous diagnostic criteria for APS.

Method

A 34-year-old Caucasian female was diagnosed as a triple positive aPL carrier after her mother suffered a cerebrovascular accident secondary to APS. She had been evaluated for recurrent headaches with a brain MRI that showed features suggestive of small vessel disease. Her first pregnancy ended with a miscarriage at 18 weeks of gestaion despite being on Aspirin and low molecular weight heparin (LMWH).

Her second pregnancy was also supported with Aspirin and prophylactic dose LMWH. She developed pre-eclampsia and had an induced assisted vaginal delivery at 38+2 weeks gestation. During labour, she desaturated and required oxygen supplements. She delivered a healthy baby girl.

Results

A post-partum CT pulmonary angiogram showed bilateral consolidation and ground glass opacities without evidence of pulmonary embolism. A transthoracic echocardiogram showed aortic valve vegetation with significant aortic regurgitation and impaired left ventricular systolic function. Antibiotic treatment was adjusted to cover pneumonia and possible infective endocarditis. She deteriorated and developed acute respiratory distress syndrome that required high-dependency unit management, diuretics and inotropic support.

Subsequently, she developed new onset visual abnormalities and word finding difficulties. Brain images showed small patchy areas of diffusion restriction suggestive of APS microvascular thrombosis. She was commenced on treatment dose LMWH and warfarin.

Conclusion

Although this patient did not fulfil the criteria for APS before her second pregnancy, she was still considered as high risk and covered with Aspirin and LMWH during pregnancy. Despite this, our patient developed acute left ventricular failure associated with aortic valve incompetence, thrombus and

possible infective endocarditis. Aortic regurgitation is recognised with APS. The cerebral changes were suggestive of intravascular thrombosis rather than an embolic event from the heart.

Criteria for decision making around anti-coagulation in pregnancy remain difficult in practice. It is not known whether full anti-coagulation earlier for this lady would have made a difference to the outcome.

It is vital that women with APS, and aPL-positive carrier females, receive pre-conception counselling and a multi-disciplinary specialist team approach to high-risk pregnancy care.

PO6:70 | A Prospective cohort study on the short and long-term prognosis including pregnancy outcomes of young patients with systemic lupus erythematosus in Japan. (PLEASURE-J study): Progress report of pregnant

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Citation
Kaneko, K., Miyagawa, E., Murashima, A. A Prospective cohort study on the short and long-term prognosis including pregnancy outcomes of young patients with systemic lupus erythematosus in Japan. (PLEASURE-J study): Progress report of pregnant.

Objective
To clarify the pregnancy outcomes of young systemic lupus erythematosus patients in Japan.

Methods
The Prospective cohort study on the short and long-term prognosis including pregnancy outcomes of young patients with systemic lupus

erythematosus in Japan (PLEASURE-J) is a prospective nationwide longitudinal cohort. The inclusion criteria are young patients with lupus erythematosus who are aged 6 to 40 and diagnosed within one year before registration. The pregnancy registry was developed by collecting data about pregnancy outcomes and disease activity and treatment during pregnancy of registered data of the PLEASURE-J cohort.

Results

Among 196 women aged 18 to 40, 36 pregnancies with 29 pregnancies were registered to the pregnancy cohort. Among 30 pregnancies after diagnosis with SLE, 33 percent of pregnancies (10/30) were unintended and only three cases used assisted reproductive technology. Ten percent of babies (3/30) were delivered preterm and about thirty percent (9/30) were low birth weight. Six pregnancies were diagnosed during pregnancy on 5, 6, 17, 18, 20, and 26 gestational weeks respectively. Of these, two cases had improved the disease activity with prednisolone and delivered healthy babies at 37 weeks while four pregnancies led to the premature delivery of very low birth weight babies.

Conclusions

The PLEASURE-J cohort is the first Japanese nationwide prospective cohort to focus on reproductive issues among young SLE patients. This cohort would be expected to be a unique data resource for future clinical research, including young patients' reproductive problems.

PO6:71 | The role of active nephritis, compared to active non-renal SLE, in pregnancy outcomes

Author
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Citation
Clowse, M., Eudy, A. The role of active nephritis, compared to active non-renal SLE, in pregnancy outcomes.

Purpose

We sought to determine whether the type of SLE activity, particularly lupus nephritis compared to non-renal SLE activity, determined the level of pregnancy risk.

Methods

All pregnancies in women with SLE enrolled <30 weeks gestation from 2 prospective registries (2007-2022) were included. Pregnancies with twins or loss <12 weeks were excluded. SLE activity was assessed using the physician's global assessment (PGA; 0 to 3) at each clinic visit. Active lupus nephritis was

adjudicated by a roundtable of 6 physicians. Pregnancies outcomes were compared between 3 groups:

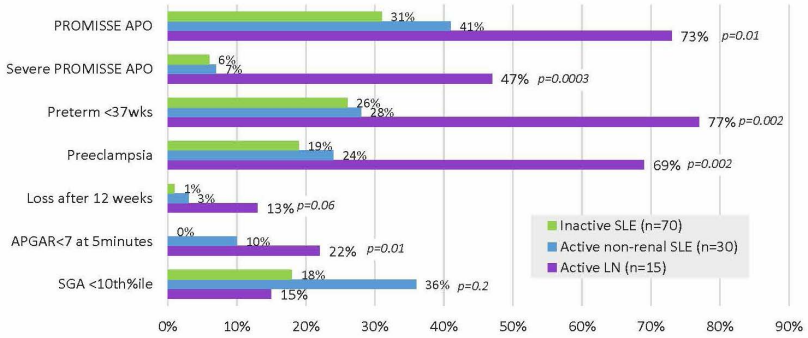
- Inactive SLE: PGA <1.5 throughout pregnancy, no renal activity
- Active non-renal SLE: PGA at least 1.5 in pregnancy, no renal activity
- Active LN: active nephritis during pregnancy

Results

Of 115 pregnancies, 70 (61%) had inactive SLE throughout pregnancy, 30 (26%) had active non-renal SLE, and 15 (13%) had active lupus nephritis during pregnancy. Women with inactive SLE were older and more likely to be White, have a college degree and private health insurance, and live with a partner (Table 1). Hydroxychloroquine and aspirin were frequently prescribed

TABLE 1: Characteristics of pregnancies in the cohort by SLE activity, with and without active nephritis

	Overall	**Inactive SLE** *(PGA<1.5)*	**Active non-renal SLE** *(PGA≥1.5 without active nephritis)*	**Active LN** *(Active nephritis in pregnancy)*	**p-value** *(comparing 3 groups)*
	N=115	n=70	n=30	n=15	
Demographics					
Maternal age at delivery	30.3 (5.1)	31.4 (5.0)	28.6 (4.4)	28.8 (5.6)	0.02
Maternal race (n=112)					0.02
Asian	5 (4%)	5 (7%)	0 (0%)	0 (0%)	
Black	56 (50%)	27 (40%)	16 (55%)	13 (87%)	
Other	7 (6%)	4 (6%)	2 (7%)	1 (7%)	
White	44 (39%)	32 (47%)	11 (38%)	1 (7%)	
Hispanic ethnicity (n=110)	9 (8%)	2 (3%)	5 (17%)	2 (13%)	0.03
Education Level: College (n=108)	71 (66%)	52 (76%)	14 (52%)	5 (38%)	0.006
Married/lives with partner (n=106)	82 (77%)	59 (89%)	18 (67%)	5 (38%)	0.0001
Health Insurance: Medicaid (n=108)	31 (29%)	11 (16%)	12 (44%)	8 (62%)	0.0005
Medications during pregnancy					
Hydroxychloroquine	106 (92%)	63 (90%)	29 (97%)	14 (93%)	0.7
Azathioprine	48 (42%)	22 (31%)	15 (50%)	11 (73%)	0.008
Prednisone	56 (49%)	22 (31%)	23 (77%)	11 (73%)	<0.0001
Highest daily dose, mg	14.1 (10.7)	8.5 (5.6)	14.3 (9.4)	24.6 (13.4)	0.002
≥7.5 mg/day *(ever in pregnancy)*	37 (32%)	9 (13%)	18 (60%)	10 (67%)	<0.0001
Low-dose aspirin	101 (88%)	65 (93%)	23 (77%)	13 (87%)	0.07
Lupus Labs at baseline					
dsDNA+	38 (33%)	13 (19%)	16 (53%)	9 (60%)	0.0001
C3/C4	25 (22%)	7 (10%)	12 (40%)	6 (40%)	0.0005



PROMISSE APO: composite variable including fetal loss >12 weeks, preeclampsia, neonatal death, SGA<5%, or preterm birth <36 weeks for gestational hypertension, preeclampsia, growth restriction, or placental insufficiency
Severe PROMISSE APO: fetal loss >12 weeks, neonatal death, preeclampsia with delivery <34 weeks, or indicated preterm delivery <30 weeks.
SGA: Small for gestational age compared to US national norms.

FIGURE 1
Pregnancy outcomes by active SLE, with and without active nephritis.

to all groups. Azathioprine was more frequently prescribed for active SLE, especially active nephritis. The majority with active SLE patients received prednisone, with or without nephritis, though at higher doses for active nephritis. Positive dsDNA and/or low complement was similarly high among women with active SLE.

The frequency of poor pregnancy outcomes, including preterm birth, preeclampsia, and low APGAR score were significantly higher among women with active nephritis (Figure 1). Active non-renal SLE did not increase adverse pregnancy outcomes. Pregnancies with active nephritis delivered earlier than other pregnancies (33.2wks active nephritis, 36.5wks active non-renal, and 37.2wks inactive SLE, p<0.0001).

Conclusions

Active lupus nephritis, but not active non-renal SLE, was associated with dramatically higher rates of adverse outcomes than inactive SLE. Differences in social determinants of health between groups could play a role both in the presence of active nephritis and worsened adverse pregnancy outcomes. This data suggests that active lupus nephritis in pregnancy is an important determinant of pregnancy outcomes and focuses our attention on the unmet medical need of these patients.

PO6:73 | Analysis of Adverse Pregnancy Outcomes (APO) and predictors in pregnancies complicated with Systemic Lupus Erythematosus (SLE); A retrospective single-center analysis in Japan

Author

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Citation

Kitada, A., Tsuboi, H., Abe, S., Sawabe, T., Kuroda, Y., Uematsu, N., Kawashima, F., Sugita, T., Terasaki, M., Sato, R., Toko, H., Nishiyama, T., Honda, F., Yagishita, M., Oyama, A., Hagiwara, S., Miki, H., Asashima, H., Kondo, Y., Matsumoto, I. Analysis of Adverse Pregnancy Outcomes (APO) and predictors in pregnancies complicated with Systemic Lupus Erythematosus (SLE); A retrospective single-center analysis in Japan.

Purpose

In Japan, hydroxychloroquine underwent regulatory approval in September 2015, and tacrolimus and azathioprine have been widely used for SLE treatment during pregnancy since around 2014. Thus, to investigate predictors for Adverse Pregnancy Outcome (APO) in pregnancies with SLE, we performed a retrospective single-center analysis targeted on pregnancies after 2015.

Methods

For all pregnancies with SLE at our hospital from Jan 2015 to Sep 2022, we examined 1) maternal background and treatment, 2) development of APO, 3) comparison of maternal clinical features between APO and non-APO groups, and 4) risk factors for APO, retrospectively.

Results

1) 48 pregnancies were analyzed, the median age at conception were 31.5 (29.0-34.3) years, 16 cases (33.3%) had lupus nephritis, and 13 cases (27.1%) had diagnosis of antiphospholipid syndrome. For treatment, corticosteroids were administered in 43 pregnancies (89.6%), hydroxychloroquine in 23 (47.9%), tacrolimus in 25 (52.1%), azathioprine in 2 (4.17%), belimumab in 3 (6.25%), low-dose aspirin in 25 (52.1%) during the pregnancy, respectively.

2) Among all 48 pregnancies, live birth was obtained in 39 (81.2%) pregnancies, and APO developed in 23 (47.9%) (12 preterm deliveries, 5 fetal deaths, 14 low birth weight, 9 hypertensive disorders, including duplicates).

3) The APO group had significantly lower platelet (Plt) count, C3, and body mass index (BMI), while significantly higher urine protein and SLEDAI in the 2nd trimester than non-APO group ($p<0.05$).

4) Multiple logistic regression analysis using Plt count, C3, BMI, urine protein, and SLEDAI as explanatory variables showed that Plt count and C3 in the

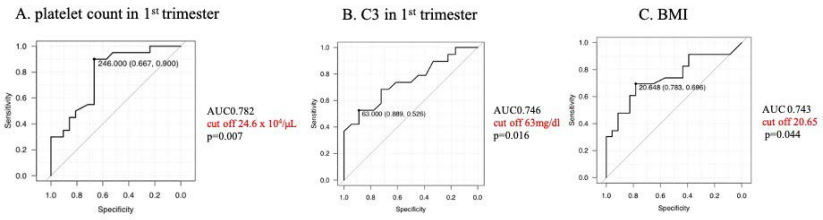


FIGURE 1
Cutoff levels for prediction of APO during pregnancies complicated with SLE by ROC curve analysis.

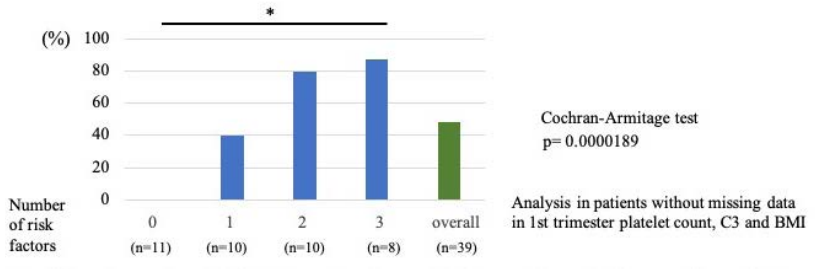


FIGURE 2
APO incidence by number of risk factors such as lower platelet count, lower C3 lever and lower BMI below the cutoff levels shown in figure 1.

1st trimester, and BMI were independently associated with APO (OR: 0.963, p=0.027, OR: 0.93, p=0.044, and OR: 0.72, p=0.008, respectively). ROC curve analysis revealed the best cutoff levels for Plt count and C3 in the 1st trimester, and for BMI (figure1). Interestingly, cases who had these identified independent risk factors developed APO significantly more frequently (p=0.0000189) (figure2).

Conclusions

Lower Plt count and lower C3 in the 1st trimester was suggested to be a risk factor for APO in SLE pregnancies corresponding to the previous reports. Furthermore, we found that lower BMI might be a novel risk factor for APO in SLE pregnancies.

PO7:74 | Presence of annexin V, C3B, C4D, AND C5B-9 in placentas of women with SLE, APS AND NC-OAPS with and without adverse pregnancy outcomes

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Citation
Gutierrez, A.S.C., Zacarias, P.F., Figueras, F., Espinosa, G., Markert, U., Baños, N., Schleußner, E., Groten, T., Prieto, D.M.M. Presence of annexin V, C3B, C4D, AND C5B-9 in placentas of women with SLE, APS AND NC-OAPS with and without adverse pregnancy outcomes.

Purpose

Annexin V and activation products of complement has been related to adverse pregnancy outcomes (APO) in women with systemic lupus erythematosus (SLE) and antiphospholipid antibodies (APS). The objective of the present study was to compare the amount of annexin V, C3b, C4d and C5b-9 in placentas of women with SLE, APS OR non-criteria-obstetric (NC-OAPS) according to the occurrence of APO.

Materials and Methods

This is an experimental study performed in the laboratory of Placenta-Jena, Germany. Placentas were collected from two centers (Hospital Clinic de Barcelona and Jena University Hospital). Indirect immunofluorescence was performed on 48 placentas. The patients were grouped into 4 different groups: healthy women without APO as control group (n=13), healthy women with fetuses with fetal growth restriction (IUGR)(n=13), women with SLE, APS and NC-OAPS without APO (n=13), and with APO (n=9). From each placenta, 3 mean intensity (MI) values were obtained. Statistical analysis was performed by Kruskal-Wallis followed by Dunn's post-hoc test and One-way ANOVA followed by Dunnett's post-hoc test. We analyzed all groups in comparison with the control group.

Results

We observed that Annexin V was decreased in the AID (autoimmune disease) groups with or without APO compared to the control and IUGR groups, However, it was statistically significant in the AID with APO group. (Figure 1). As for C3b, we found that all groups have a significant increased C3b level compared to the control group (Figure 2). C4d was significant increased in all 3 groups compared to the control group (Figure 3). Finally, in relation to

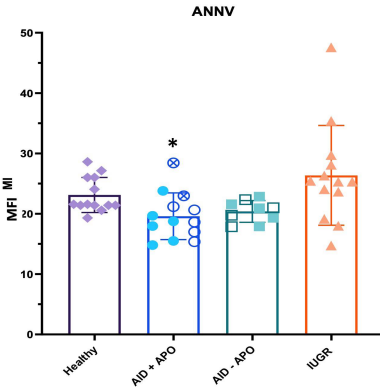


FIGURE 1
Annexin V results in placentas of patients with SLE, APS and NCOAPS with or without APO compared to the control and IUGR groups.
AID: autoimmune disease. APO: adverse pregnancy outcome. IUGR: Intrauterine growth restriction.

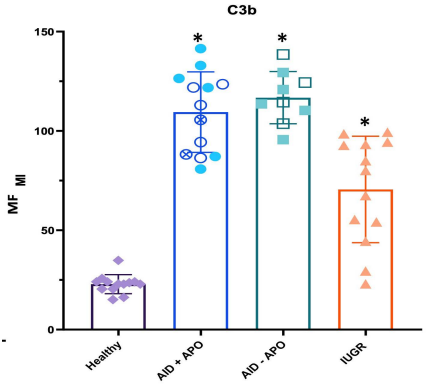


FIGURE 2
C3b results in placentas of patients with SLE, APS and NC-OAPS with or without APO compared to the control and IUGR groups.
AID: autoimmune disease. APO: adverse pregnancy outcome. IUGR: Intrauterine growth restriction.

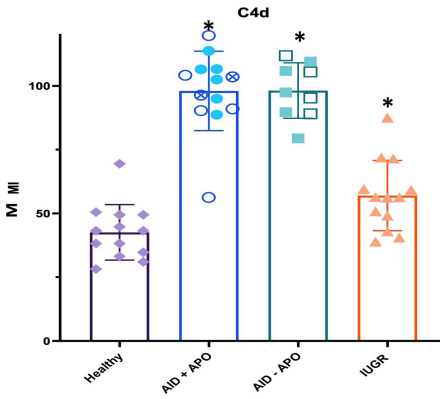


FIGURE 3
C4d results in placentas of patients with SLE, APS and NCOAPS with or without APO compared to the control and IUGR groups.
AID: autoimmune disease. APO: adverse pregnancy outcome. IUGR: Intrauterine growth restriction.

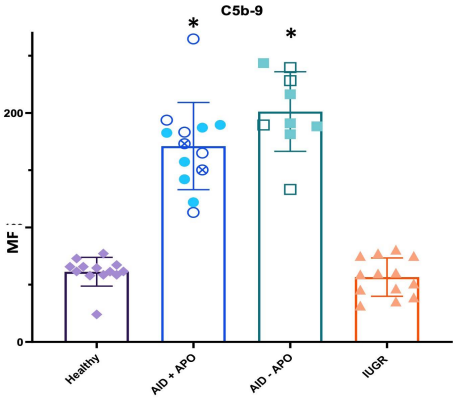


FIGURE 4
C5b-9 results in placentas of patients with LES, APS and NC-OAPS with or without APO compared to the control and IUGR groups.
AID: autoimmune disease. APO: adverse pregnancy outcome. IUGR: Intrauterine growth restriction.

C5b-9, we noted no changes between the control group and the FGR group, but it was increased in the AID groups (Figure 4).

Conclusions

In our cohort, annexin V was decreased in the group of women with SLE, APS and NC-OAPS and it is not related to APO features. On the other hand, C3b, C4d and C5b-9 were increased in all groups compared to healthy women without APO. However, we did not find differences between SLE, APS and NC-OAPS groups with and without APO.

PO7:75 | Coagulation parameters in pregnant women with systemic lupus erythematosus and healthy pregnant controls, both with and without preeclampsia

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Citation
Lini, D., Gunnarsson, I., Soutari, N.M.H., Lalic-Cosic, S., MC Nicholas, A., Charieti, R., Bremme, K., Franceschini, F., Svenungsson, E., Andreoli, L., Antovic. A. Coagulation parameters in pregnant women with systemic lupus erythematosus and healthy pregnant controls, both with and without preeclampsia.

Purpose
Women living with Systemic Lupus Erythematosus (SLE) are at increased risk of pregnancy complications, including preeclampsia (PE). Placental dysfunction is the key pathogenic event, but underlying mechanisms are largely unknown. This study aimed to investigate global-coagulation-assays in pregnant SLE patients in relation to PE, antiphospholipid antibody(aPL) status, and the use of antithrombotic prophylaxis.

Methods
SLE-patients were sampled during the third trimester of gestation for coagulation assays: overall coagulation potential (OCP); overall-haemostatic-potential (OHP); overall-fibrinolysis-potential (OFP), fibrinogen and D-dimer. Pregnant healthy controls (HC) with/without PE were also analysed.

Results
Twenty-two consecutive pregnant SLE-patients, 80 pregnant HC without PE, and 42 pregnant HC with PE were collected. Disease characteristics, pregnancy features, and coagulation parameters are reported in Table 1. No thrombotic/major bleeding events occurred in both SLE-patients and HC. No differences across groups were found for fibrinogen and D-dimer levels. All SLE-patients received prophylaxis with low-dose-acetylsalicylic acid (LDASA). Among 8 SLE-patients treated also with low-molecular-weight-heparin (LMWH), OCP, OHP, and OFP were undetectable in 1 SLE+PE and 1 SLE without PE, both with triple aPL-positivity and on therapeutic-dosage. Regarding aPL-status, 6 out of 7 aPL-positive patients received LMWH: undetectable values were observed only in the 2 previously mentioned patients on therapeutic-dosage, while the other 4 patients were on

TABLE 1: Characteristics and coagulation parameters of SLE patients and HC. Continuous variables are expressed as mean±SD. [g, i, l, n]=p<0.05; [a, b, c, d, e, f, h, m]=p<0.01. (*) Prophylactic dose; (#) Anticoagulant dose

Abbreviations: aPL: antiphospholipid antibodies; APS: antiphospholipid syndrome; LDASA: low dose acetylsalicylic acid; LMWH: low molecular weight heparin; NA: not applicable; OCP: overall coagulation potential; OFP: overall fibrinolysis potential; OHP: overall haemostatic potential.

	Pregnant SLE patients (n=22)	Pregnant SLE without PE (n=18)	Pregnant SLE with PE (n=4)	Pregnant SLE patients without LMWH therapy (n=14)	Pregnant SLE patients with LMWH therapy (n=8)	Pregnant HC without PE (n=80)	Pregnant HC with PE (N=42)
Age, years	32.5±3.6	32.1±3.4	34.5±4.8	32.6±4.2	32.4±4.2	30.1±4.9	31.2±6.6
BMI, kg/m²	22.7±2.6	22.5±2.4	23.7±3.4[a]	23.3±2.4	21.7±2.7	25.8±2.9	30.1±5.7[a]
Disease duration, years	10.7±7.9	9.8±7.2	15±10.4	10.9±9.3	10.5±4.8	NA	NA
Gestational age at delivery, weeks	38.5±1.6	38.7±1.8	37.6±0.4[b]	38.7±1.8	38.2±1.4	39.3 ± 3.5	33.1±3.7[b]
Lupus nephritis, n (%)	6 (27.3)	4 (22.2)	2 (50)	5 (35.7)	1 (12.5)	NA	NA
APS, n (%)	1 (4.5)	0	1 (25)	0	1 (12.5)	NA	NA
aPL carrier, n (%)	7 (31.8)	5 (27.8)[c]	2 (50)[d]	2 (14.3)	5 (62.5)	2 (2.5)[c]	0[d]
Disease flare during pregnancy, n (%)	5 (22.7)	4 (22.2)	1 (25)	2 (14.3)	3 (37.5)	NA	NA
Preeclampsia, n (%)	4 (18.2)	0	4 (100)	2 (14.3)	2 (25)	0	42 (100)
LDASA only, n (%)	14 (63.6)	12 (66.7)[e]	2 (50)[f]	14 (100)	0	0[e]	0[f]
LMWH only, n (%)	0	0	0	0	0	0	0
LDASA + LMWH, n (%)	8 (36.4)	6 (33.3) 5*; 1#	2 (50) 0*; 2#	0	8 (100)	0	2 (4.8)
Oral Glucocorticoids, n (%)	8 (36.4)	5 (27.8)	3 (75)	3 (21.4)	5 (62.5)	NA	NA
Hydroxychloroquine, n (%)	19 (86.4)	15 (83.3)	4 (100)	11 (78.6)	8 (100)	NA	NA
Other immunosuppressants, n (%)	7 (31.8)	6 (33.3)	2 (50)	4 (28.6)	3 (37.5)	NA	NA
Fibrinogen (g/L)	4.9±1	4.8±0.9	5.5±1.5	4.7±0,9	5.2±1.2	4.6±1.2	5.0±1.0
D-dimer (mg/L FEU)	1.5±0.5	1.5±0.6	1.1±0.3	1.5±0.5	1.4±0.6	1.4±0.5	1.6±0.8
OCP (Abs-sum)	368.9±135.8	394.6±116[g,h]	253.6±176.4[g]	427.2±50.7[i]	298.9±173[i]	242.2±36.1[h]	231.6±40.6
OHP (Abs-sum)	187.4±83.8	196.5±80.4	146.4±99.1	204.4±64.8	166.9±102	173.1±46.0	195.2±36.7
OFP %	44.7±18.6	47.8±16.9[l]	30.9±22.2[m]	53±10.1[n]	34.8±21.9 [n]	29.2±12.4[l]	15.3±9.2[m]

prophylactic-dosage. The only patient who did not receive LMWH (LDASA only), was triple aPL positive and displayed similar parameters to aPL negative patients. PE occurred in 4 SLE-patients (18.2%);3 of them were on LMWH (1 full, 2 prophylactic-dosage). SLE+PE displayed significantly lower OCP and OFP, but not OHP, as compared to SLE without PE.

Conclusions

Coagulation parameters were altered in SLE pregnancy compared to HC-pregnancy, regardless of PE. LMWH is expected to reduce the values of OCP, OHP, and OFP to undetectable levels, but this phenomenon was not observed in all SLE patients treated with similar prophylactic-dosages, suggesting that the response to LMWH can be variable among SLE pregnant patients. We could not assess any possible interference related to

aPL-positive, due to concomitant treatment with LMWH in most of these patients. Larger and longitudinal studies across trimesters of gestation will clarify whether coagulation parameters are useful to monitor treatment effects and improve the management of SLE-pregnancy.

PO7:77 | Tacrolimus use in SLE pregnancy and its effect on pregnancy outcomes: Retrospective study in two Japanese tertiary referral centers

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Citation

Nakai, T., Honda, N., Soga, E., Fukui, S., Kitada, A., Yokogawa, N., Okada, M. Tacrolimus use in SLE pregnancy and its effect on pregnancy outcomes: Retrospective study in two Japanese tertiary referral centers.

Objective
Tacrolimus (Tac) is widely used in the care of systemic lupus erythematosus (SLE), and it is thought to be compatible to use during pregnancy.

However, its use is sometimes related to the endothelial damage. Endothelial dysfunction can lead to adverse pregnancy outcomes (APO) including hypertensive disorders of pregnancy (HDP), and pre-eclampsia, so Tac use during pregnancy has a possibility to raise the frequency of APOs. Since there are limited data on Tac use during pregnancy, we conducted this study.

Methods
Patient with SLE who was followed up at two Japanese tertiary referral centers were included in our study. We divided the patients into two groups according to the use of Tac during pregnancy and analyzed the occurrence of hypertensive disorders during pregnancy (HDP), pre-eclampsia and PROMISSE APO. In addition, propensity score matching was used to minimize selection bias.

Results
A total of 124 pregnancies were included in the study and 29 pregnancies were treated with Tac.

Prevalence of lupus nephritis (LN) was more common in pregnancies on Tac, and they tended to receive higher dose of glucocorticoid at conception. (Tac vs not on Tac: LN: 51.7% vs 17.9%, p=0.001, LN class III/IV: 20.7% vs 6.3%, p=0.03, glucocorticoid dosage; 5.00 [5.00, 10.00] vs 5.00 [1.00, 8.50], p=0.02) In addition, more patients on Tac experienced lupus flare at the time of conception. (19.2% vs 1.4%, p<0.01).

Pregnant on Tac had tendency to experience HDP, preeclampsia but was not statistically significant. (HDP: 24.1% vs 13.7%, p=0.25, preeclampsia: 10.3% vs 5.3%, p=0.39) Prevalence of PROMISSE APO did not differ between the two groups. (37.9% vs 32.6%, p=0.66).

TABLE 1

Factor	Tacrolimus exposure non-matched (-)	(+)	p value	Tacrolimus exposure Propensity Score matched (-)	(+)	P value
n	95	29		20	20	
Overall APO	46 (48.4)	16 (55.2)	0.67	9 (45.0)	10 (50.0)	1.0
Maternal APO	**23 (24.2)**	**13 (44.8)**	**0.04**	4 (20.0)	7 (35.0)	0.48
Neonatal APO	42 (44.2)	14 (48.3)	0.83	11 (55.0)	10 (50.0)	1.0
PROMISSE APO	31 (32.6)	11 (37.9)	0.66	7 (35.0)	7 (35.0)	1.0
Flare during pregnancy	**8 (8.4)**	**8 (27.6)**	**0.01**	**0 (0.0)**	**4 (20.0)**	**0.11**
flare after delivery	**6 (6.8)**	**8 (34.8)**	**0.001**	**0 (0.0)**	**4 (25.0)**	**0.03**
Gestational DM	**8 (8.4)**	**6 (20.7)**	**0.09**	2 (10.0)	4 (20.0)	0.66
Preeclampsia	5 (5.3)	3 (10.3)	0.39	0 (0.0)	2 (10.0)	0.49
Gestational hypertension	13 (13.7)	7 (24.1)	0.25	2 (10.0)	4 (20.0)	0.66
HELLP syndrome	2 (2.1)	0 (0.0)	1.0	0 (0.0)	0 (0.0)	NA
Oligohydramnios	8 (8.4)	1 (3.4)	0.68	1 (5.0)	1 (5.0)	1.0
PROM	0 (0.0)	0 (0.0)	NA	0 (0.0)	1 (5.0)	1.0
Maternal death	0 (0.0)	0 (0.0)	NA	0 (0.0)	0 (0.0)	NA
live birth	**88 (92.6)**	**23 (79.3)**	**0.08**	20 (100.0)	16 (80.0)	0.11
Total duration of gestation	267.0 [257.5, 275.0]	266.0 [213.0, 273.0]	0.17	267.0 [259.8, 274.3]	266.0 [223.0, 272.0]	0.38
preterm birth	16 (17.8)	5 (20.0)	0.78	5 (25.0)	3 (17.6)	0.70
spontaneous abortion	**1 (1.1)**	**2 (7.4)**	**0.12**	0 (0.0)	2 (10.5)	0.23
missed abortion	3 (3.2)	1 (3.7)	1.0	0 (0.0)	0 (0.0)	NA
Iatrogenic abortion	4 (4.2)	3 (10.3)	0.35	0 (0.0)	2 (10.0)	0.49
Still birth	0 (0.0)	0 (0.0)	NA	0 (0.0)	0 (0.0)	NA
height at birth (cm)	47.2 [46.0, 49.0]	47.0 [43.5, 50.0]	0.94	47.4 [46.0, 49.0]	46.25 [43.8, 49.6]	0.42
weight at birth (g)	2709 [2411, 3016]	2812 [2165, 2943]	0.57	2541 [2411, 2793.5]	2740 [2207.5, 2917.5]	0.89
SGA	15 (17.0)	4 (17.4)	1.0	4 (20.0)	2 (12.5)	0.67
Apgar score (1m)≥7	85 (96.6)	21 (91.3)	0.28	18 (90.0)	15 (93.8)	1.0
Apgar Score (5m)≥7	87 (98.9)	22 (95.7)	0.37	20 (100.0)	15 (93.8)	0.44

Propensity score matched population also showed no statistical difference in the prevalence of APO according to the usage of Tac. (PROMISSE APO: 35.0% vs 35.0%, p=1.0, HDP: 20.0% vs 10.0%, p=0.66, preeclampsia: 10.0% vs 0.0%, p=0.49).

Conclusions

Tac use during pregnancy did not show any significant increase in the HDP, preeclampsia, and PROMISSE APO so its use during pregnancy is acceptable.

PO7:78 | Effect of zen/doria remission and glucocorticoid dosage on the pregnancy outcome of SLE: Retrospective study in two Japanese tertiary referral centers

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Citation

Nakai, T., Honda, N., Soga, E., Fukui, S., Kitada, A., Yokogawa, N., Okada, M. Effect of zen/doria remission and glucocorticoid dosage on the pregnancy outcome of SLE: Retrospective study in two Japanese tertiary referral centers.

Objective
Achieving remission is one of the treatment targets in the lupus care and active disease is known to increase prevalence of adverse pregnancy outcome (APO).

Although DORIS remission and LLDAS are commonly used to evaluate the association between disease remission and APO, little is known about its relationship with Doria remission, so we conducted this study.

Methods
Patient with SLE who was followed up at two Japanese tertiary referral centers were included in our study. We divided the patients into two groups according to the achievement of Zen/Doria remission and analyzed the APO prevalence. Furthermore, we calculated optimal glucocorticoid dosage to minimize APO.

Results
A total of 124 pregnancies were included in the study and 59 achieved Zen/Doria remission at conception.

Though, baseline characteristics did not differ between the two groups, patients in Zen/Doria remission used lower glucocorticoid and more patients in remission used hydroxychloroquine compared with those who did not. (remission vs not on remission; prednisolone (PSL): 4.0 [0.0, 5.0] mg/day vs 10.0 [8.0, 11.0] mg/day, $p<0.01$, hydroxychloroquine: 54.2% vs 37.8%, $p=0.14$)

Pregnant on Zen/Doria remission showed significant decrease in the prevalence of APO compared with those without. (overall APO: 39.0% vs 70.3%, $p<0.01$, maternal APO: 18.6% vs 40.5%, $p=0.03$, neonatal APO: 37.3% vs 62.2%, $p=0.02$) Logistic regression model also showed that achieving Doria remission is related to lower APO prevalence (overall APO: OR 0.27, 95%CI 0.11-0.65, $p<0.01$, maternal APO: OR 0.34, 95%CI 0.13-0.85, $p=0.02$, neonatal APO: OR 0.36, 95%CI 0.16-0.85, $p=0.02$, PROMISSE APO: OR 0.44, 95%CI 0.18-0.10, $p=0.06$)

TABLE 1

Factor	Zen/Doria remission			Zen/Doria remission Logistic regression model			PSL1sttri≥7.5mg/day			PL1sttri≥7.5mg/day Logistic regression		
	(-)	(+)	p value	OR	95%CI	P value	(-)	(+)	P value	OR	95% CI	P value
N	37	59					87	37				
overall APO	**26 (70.3)**	**23 (39.0)**	**<0.01**	**0.27**	**0.11-0.65**	**<0.01**	**38 (43.7)**	**24 (64.9)**	**0.05**	**2.38**	**1.07-5.28**	**0.03**
maternal APO	**15 (40.5)**	**11 (18.6)**	**0.03**	**0.34**	**0.13-0.85**	**0.02**	23 (26.4)	13 (35.1)	0.39	1.51	0.66-3.44	0.33
neonatal APO	**23 (62.2)**	**22 (37.3)**	**0.02**	**0.36**	**0.16-0.85**	**0.02**	**33 (37.9)**	**23 (62.2)**	**0.02**	2.69	1.22-5.94	0.01
PROMISSE APO	17 (45.9)	16 (27.1)	0.08	0.44	0.18-0.10	0.06	**24 (27.6)**	**18 (48.6)**	**0.04**	**2.49**	**1.12-5.52**	**0.03**
flare during pregnancy	**8 (21.6)**	**2 (3.4)**	**0.01**	**0.13**	**0.025-0.64**	**0.01**	**7 (8.0)**	**9 (24.3)**	**0.02**	**3.67**	**1.25-10.8**	**<0.01**
flare after delivery	**7 (24.1)**	**1 (1.9)**	**<0.01**	**0.06**	**0.007-0.51**	**0.01**	**6 (7.3)**	**8 (27.6)**	**0.01**	**4.83**	**1.5-15.4**	**<0.01**
gestational DM	6 (16.2)	4 (6.8)	0.18	0.38	0.098-1.43	0.15	9 (10.3)	5 (13.5)	0.76	1.35	0.42-4.35	
preeclampsia	3 (8.1)	3 (5.1)	0.67	0.61	0.12-3.18	0.56	5 (5.7)	3 (8.1)	0.70	1.45	0.33-6.4	0.63
Gestational hypertension	7 (18.9)	6 (10.2)	0.24	0.49	0.15-1.58	0.23	14 (16.1)	6 (16.2)	1.0	1.01	0.36-2.87	0.99
HELLP syndrome	1 (2.7)	1 (1.7)	1.0	0.62	0.04-10.2	0.74	1 (1.1)	1 (2.7)	0.51	2.39	0.15-39.2	0.54
Oligohydramnios	**6 (16.2)**	**2 (3.4)**	**0.05**	**0.19**	**0.04-0.97**	**0.05**	**3 (3.5)**	**6 (16.2)**	**0.02**	**5.35**	**1.26-22.7**	**0.02**
maternal death	0 (0.0)	0 (0.0)	NA	NA	NA	NA	0 (0.0)	0 (0.0)	NA	NA	NA	NA
live birth	29 (78.4)	54 (91.5)	0.12	2.98	0.89-9.94	0.76	82 (94.3)	29 (78.4)	**0.02**	**0.22**	**0.067-0.73**	**0.01**
Total duration of gestation (days)	**262.0 [242.0, 271.0]**	**268.0 [262.0., 276.0]**	**0.02**				**269.0 [262.0, 276.0]**	**261.0 [242.0, 269.0]**	**<0.01**			
preterm birth	6 (18.2)	8 (14.8)	0.77	0.78	0.25-2.5	0.67	15 (18.3)	6 (18.2)	1.0	0.99	0.35-2.83	0.99
spontaneous abortion	1 (2.8)	2 (3.4)	1.0	1.25	0.11-14.3	0.86	2 (2.3)	1 (2.8)	1.0	1.2	0.11-13.7	0.88
missed abortion	3 (8.1)	1 (1.8)	0.30	0.20	0.02-2.02	0.17	1 (1.2)	3 (8.1)	0.08	7.41	0.75-73.8	0.09
Iatrogenic abortion	5 (13.5)	2 (3.4)	0.10	0.23	0.04-1.22	0.08	**2 (2.3)**	**5 (13.5)**	**0.02**	**6.64**	**1.23-36**	**0.03**
Still birth	0 (0.0)	0 (0.0)	NA	NA	NA	NA	0 (0.0)	0 (0.0)	NA	NA	NA	NA
height at birth (cm)	**46.0 [43.8, 48.0]**	**48.0 [46.5, 49.5]**	**0.04**				**47.5 [46.0, 49.2]**	**46.0 [44.2, 47.8]**	**<0.01**			
weight at birth (g)	**2472.0 [2202.0, 2896.0]**	**2716.0 [2476.5, 3013.8]**	**0.03**				**2752.5 [2473.8, 3056.8]**	**2472.0 [2176.0, 2816.0]**	**<0.01**			
Low birth weight	**15 (51.7)**	**15 (27.8)**	**0.05**	**0.36**	**0.14-0.92**	**0.03**	58 (70.7)	14 (48.3)	0.041	**2.59**	**1.08-6.18**	**0.03**
SGA (%)	6 (20.7)	8 (14.8)	0.55	0.67	0.21-2.15	0.50	11 (13.4)	8 x27.6)	0.09	**2.59**	**1.08-6.18**	**0.03**
Apgar score (1m)	8.0 [8.0, 8.0]	8.0 [8.0, 8.0]	0.53				8.0 [8.0, 8.0]	8.0 [8.0, 8.0]	0.39			
Apgar Score (5m)	9.0 [9.0, 9.0]	9.0 [9.0, 9.0]	0.5				9.0 [9.0, 9.0]	9.0 [9.0, 9.0]	0.81			
Apgar.score.1m>7 (%)	27 (93.1)	53 (98.1)	0.28	3.93	0.34-45.3	0.27	79 (96.3)	27 (93.1)	0.60	0.51	0.08-3.23	0.48
Apgar.score.5m>7 (%)	29 (100.0)	54 (100.0)	1.0	NA	NA	NA	81 (98.8)	28 (96.6)	0.46	0.35	0.02-5.71	0.46

In addition, PSL>7.5mg/day was associated with the increase in the APO prevalence. (overall APO: OR 2.38, 95%CI 1.07-5.28, p=0.03, maternal APO: OR1.51, 95%CI 0.66-3.44, p=0.33, neonatal APO: OR 2.69, 95%CI 1.22-5.94, p=0.01, PROMISSE APO: OR 2.49, 95%CI 1.12-5.52, p=0.03)

Conclusions

Achieving Zen/Doria remission can be a clinical target to reduce APO in patients who wants to be conceived. In addition, if clinically acceptable, try to reduce glucocorticoid dosage to less than 7.5mg/day before conception can be another treatment target.

PO7:79 | Fetal hope: Home fetal heart rhythm monitoring in pregnant woman positive for anti-SSA autoantibodies

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Citation

Dominioni, C.C, Bizzi, E., Mauro, A., Milazzo, R., Fredi, M., Gerardi, M.C., Brucato, A. Fetal hope: Home fetal heart rhythm monitoring in pregnant woman positive for anti-SSA autoantibodies.

Purpose

Worldwide about 0.5-1% of women in reproductive age are positive for anti-Ro/SSA and anti-La/SSB antibodies. Neonatal systemic lupus erythematosus is a rare disease that occurs due to the transplacental passage of maternal anti-SSA and anti-SSB.

The pathogenesis of this disease is not well understood. Probably, it is mediated by the binding of these antibodies to fetal cardiac myocytes that induce an inflammatory cascade. The hallmark manifestation is atrioventricular block (AVB) which in most cases is complete (CHB). The AVB commonly develops between the 18th and 26th weeks of gestation and it causes fetal bradycardia and sometimes signs of heart failure.

CHB appears to be irreversible, but anecdotal reports suggest that treatment of second-degree AVB can reestablish sinus rhythm. Physicians have made efforts to early identify CHB and stop its progression.

The aim of the study is to assess the incidence of fetal AVB in pregnant positive for anti-SSA autoantibodies and to evaluate whether early treatment may influence the course of the disease.

Methods

Eleven Italian centers are currently involved. The patients are taught to use a hand-held doppler monitor between 16 and 34 weeks of gestation and monitor fetal heart rhythm (FHR) every 8 hours. In case of anomalies in FHR they have to call the site investigator who guaranteed a diagnostic echocardiogram within 8h. In case echocardiogram confirmed anomalies, transplacental treatment will be offered according to local protocols.

All patients will do echocardiographic examination every two weeks and follow-up visit at 20, 26 and 32 weeks of gestation. During each visit information on the course of maternal disease, the use of medications and data on instrumental monitoring will be collected.

After birth, data on pregnancy outcome, mode of delivery, neonatal outcomes will be recorded and 12-lead electrocardiograms will be performed.

Conclusions

Home FHR monitoring may allow a closer surveillance by detecting the progression of normal rhythm to AVB and gives a chance to stop its progression but studies are need to evaluate this hypothesis. At the time of this writing 16 women have been enrolled; our aim is to enroll 200 women. Interested centers may join this study.

PO7:81 | Surveillance for pregnant women with anti-Ro/ anti-La antibodies in Germany – Feasibility of home monitoring

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Citation

Kniess, D., Keil, C., Bedei, I., Axt-Fliedner, R. Surveillance for pregnant women with anti-Ro/ anti-La antibodies in Germany – Feasibility of home monitoring.

Introduction

Worldwide, approximately 0.5-1% of women develop anti-Sjögren's syndrome antigen A (anti-Ro/SSA antibodies). In 1-2% of these women, pregnancy is complicated by serious cardiac affections in the fetus, mainly AV block, EFE, and cardiomyopathy. Strategies to prevent these complications in utero is therefore of paramount importance.

Some studies could show that development of AVB III° may develop in less than 24 hours after a complete normal PR Interval. Weekly Doppler checks are unnecessary for most pregnant women, but too infrequent for affected fetuses. Here, home monitoring could be a resurgence-saving and targeted addition. To evaluate the feasibility of this monitoring approach in Germany, we have initiated a prospective study.

Methods

We have initiated a prospective single-center study of anti-Ro/anti-La antibody-positive pregnant women in which patients measure and note their child's heart rate 3 times daily using a hand-held Doppler device for approximately 1 minute after extensive training at the study center. The measurements take place between the 18th-26th week of pregnancy. Weekly echocardiographic controls continue to take place at the center. Aim of the study is to evaluate the acceptance and practicability of self-monitoring in the patient's everyday routine. Ethical approval was received by the ethical committee for Medicine at the Justus Liebig University Giessen, Germany (AZ 225/21).

Results

This is an ongoing study. Data are available for 13 patients so far. These data show that the participants performed approximately 80% of the daily fetal heart rate measurements. Daily routine with an infant in multiparous women is reported as one reason why the measurements could not be performed regularly. Approximately 43.75% of participants agreed that they felt empowered by home monitoring, with 18.75% fully agreeing and 37.5% neither agreeing nor disagreeing. In addition, approximately 47% of patients reported that they did not feel additionally stressed by self-monitoring, while 35.3% neither agreed nor disagreed with the question and only 17.65% felt additional stress.

Conclusion

The data collected so far show that home-monitoring by hand-held Doppler can be integrated into everyday life and may be a promising possibility for pregnant women at risk.

PO7:82 | Predictors of adverse fetal outcomes in Systemic Lupus Erythematosus

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Citation
Santos, I., Nicolau, R., Beirão, T., Guimarães, F., Aguiar, F., Ganhão, S., Rodrigues, M., Rocha, A., Monteiro, S., Aidos, J., Santos, J., Monteiro, P., Martins, N., Brito, I. Predictors of adverse fetal outcomes in Systemic Lupus Erythematosus.

Purpose
Systemic Lupus Erythematosus (SLE) mainly affects women of childbearing age and increases the risk for materno-fetal complications during pregnancy. The aim of this study was the description of pregnancy outcomes as well as the identification of predictors of adverse events in pregnant SLE patients.

Methods
Retrospective and longitudinal study including pregnant women with SLE followed in two Portuguese rheumatology departments. Demographic and clinical data were collected. Disease activity was assessed using SLEDAI-2K. Statistical analysis was performed using R version 4.2.2 considering p-values lower than 0.05 as statistically significant.

Results
Thirty pregnancies of 27 women were included. The average maternal age was 33.9 years, and the average disease duration was 81.6 months. Most women (n=26; 86.7%) showed none or low disease activity at conception. Lupus nephritis (LN) was present in 20.0% (n=6) and antiphospholipid syndrome (APS) in 13.3% (n=4). In 7 pregnancies (23.3%) the patients were positive for anti-SSA antibodies, meeting criteria for Sjögren's syndrome in 3 (10.0%). 36.7% (n=11) had antiphospholipid antibodies (APLA). In 23.3% (n=7) there was prior hypertension (HTN). Two patients (6.7%) had a disease flare during pregnancy, both with renal activity in known LN. 82.1% (n=23) of the

TABLE 1: Miscarriage rate in pregnant SLE women with arterial hypertension, lupus nephritis, and antiphospholipid antibodies with antiphospholipid syndrome

			Miscarriage		
			Yes	No	
Arterial hypertension	Yes	N (%)	4 (57.1%)	3 (42.9%)	p=0.006
	No	N (%)	1 (4.3%)	22 (95.7%)	
Lupus nephritis	Yes	N (%)	4 (66.7%)	2 (33.3%)	p=0.003
	No	N (%)	1 (4.2%)	23 (95.8%)	
Antiphospholipid antibodies with antiphospholipid syndrome	Yes	N (%)	3 (75.0%)	1 (25.0%)	p=0.024
	No	N (%)	0 (0.0%)	7 (100.0%)	

pregnancies resulted in live births, the majority at full term (n=17; 73.9%) and non-instrumental vaginal deliveries (n=10; 43.5%). The average gestational age at birth was 37.6 weeks and the neonates' average weight was 2866 g. A miscarriage rate of 16.7% (n=5) and a preterm delivery rate of 26.1% (n=6) were found. Fetal grow restriction (FGR) complicated 30.4% (n=7) of the gestations. The analysis of maternal factors on obstetric evolution demonstrated that miscarriage was more frequent in women with HTN (57.1% vs 4.3%, p=0.006), LN (66.7% vs 4.2%, p=0.003), and APLA with APS (75.0% vs 0.0%, p=0.024). No statistically significant difference was found regarding FGR, preterm birth, or low birth weight.

Conclusions

This study suggests the existence of an increased risk of miscarriage in SLE women with HTN, LN and APLA with APS, in line with existing literature. Even with management improvement, SLE still poses a significant risk for perinatal morbidity, which highlights the importance of a multidisciplinary follow-up.

PO7:83 | The famale study: Investigating failing maternal-fetal tolerance in pregnant women with SLE

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Citation
Dankers, W., Veeneman, K., Sanchez, A.P., de Boer, M., van Baarsen, L., Bultink, I. The famale study: Investigating failing maternal-fetal tolerance in pregnant women with SLE.

Purpose

Pregnant women with systemic lupus erythematosus (SLE) have an increased risk of maternal complications and adverse fetal outcomes, like preeclampsia, preterm birth and fetal growth restriction. Interestingly, this increased risk persists in subsequent pregnancies, whereas it decreases in healthy women due to the development of maternal-fetal tolerance. Since maternal-fetal tolerance is crucial for a healthy pregnancy, we hypothesize that its failure contributes to the increased risk of pregnancy complications in women with SLE. Therefore, we have initiated the FaMaLE study to investigate failing maternal-fetal tolerance in pregnant women with SLE.

Methods

18 healthy women and 60 women with SLE will included in their first trimester of pregnancy (<14 weeks gestational age (GA)) at Amsterdam UMC. Peripheral blood is collected once every trimester (10-14 weeks GA, 20-24 weeks GA, 30-34 weeks GA), within 48 hours before delivery and 6-12 weeks after delivery. Whole blood and peripheral blood mononuclear cells (PBMC) are analyzed directly by flow cytometry, and serum, plasma and PBMC are stored. After delivery the placenta is collected for cell isolation, flow cytometry, tissue culture and storage for later experiments.

Results

We have optimized experimental protocols to generate single-cell suspensions of the placental basal plate and chorioamniotic membranes, where maternal-fetal tolerance is thought to develop. Thereby we collect both immune cells and stromal cells, like trophoblasts and fibroblasts, enabling studies of all cellular properties at these maternal-fetal interfaces. Furthermore, we have designed 5 flow cytometry panels to investigate in

depth the representation of non-immune cells in the placenta, and immune cells in placenta and peripheral blood. Currently 15 patients are included, and preliminary analysis of their immunological parameters is ongoing. Furthermore, we are developing in vitro models of the maternal-fetal interface, to investigate development of maternal-fetal tolerance in women with SLE.

Conclusions

The FaMaLE study contributes a comprehensive dataset about the cellular properties in the placenta and peripheral blood of pregnant women with SLE, focused on both immune cells and stromal cells at the maternal-fetal interface. These data will provide novel insights into the development and failure of maternal-fetal tolerance, and thereby into pregnancy complications in women with SLE.

PO7:84 | Complement activation products and antiphospholipid antibodies in pregnancy

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Citation

Erra, R., Lonati, P., Trespidi, L., Borghi, M.O., Da Via, A., Bodio, C., Grossi, C., Ghezzi, L., Simone, N.D., Gerosa, M., Chighizola, C., Gazzola, F., Scarrone, M., Ossola, M.W., Caporali, R., Ferrazzi, E.M., Meroni, P.L. Complement activation products and antiphospholipid antibodies in pregnancy.

Purpose

Pregnancies in Systemic Autoimmune Rheumatic Diseases (SARD) still display an increased risk of obstetric complications despite therapy/close monitoring according to guidelines. The identification/validation of predictive biomarkers for obstetric risk is an unmet need.

Complement plays a crucial role in implantation & placental physiological development. Antiphospholipid antibodies (aPL) are the most identified and treatable cause of recurrent miscarriages & late-pregnancy morbidity. Complement activation by aPL is one of the mechanisms in aPL-related miscarriages, and complement levels have been suggested as useful tools for monitoring. There is growing evidence that plasma complement activation products may offer much more information than serum C3/C4. Our aim was to investigate the usefulness of a large panel of classification and non-classification laboratory anti-phospholipid syndrome (APS) criteria as well as C3-C4 and C3a, C5a, sC5b9 levels before, throughout, and after pregnancy to validate diagnostic/prognostic algorithms.

Methods

56 pregnant women with SARD (19 APS, 7 aPL carriers, 8 SLE aPL neg, 10 non-SLE connective tissue diseases, 12 inflammatory arthritis) were followed prospectively before, during the course of pregnancy, and in the postpartum period. aPL criteria tests, anti-PS-PT and anti-B2GPI domain(D)1/D4,5 antibodies, total circulating immunoglobulins as well as complement proteins (C3a, C5a, sC5b9, C3, C4) were measured. The same parameters were evaluated in 20 healthy pregnant controls. In addition, clinical data were collected to investigate a possible link with laboratory results.

Results

aPL titers were stable during the pregnancy, displaying a small decrease during the 2nd & 3rd trimesters that disappeared after partum with behavior comparable to the whole Ig and albumin serum levels. We observed an increase in aCL, anti-B2GPI & anti-D1 IgG titers, as well as increasing values in C3a, C5a, and sC5b9 in the 2nd trimester of pregnancy in women with aPL.

Conclusions

Our findings suggest that the 2nd trimester of pregnancy may be the crucial period during which complement-mediated aPL damage to the placenta takes place. The study is still recruiting patients and the correlation between clinical outcomes and laboratory results will be evaluated at the end of the enrollment.

PO7:85 | The first reported successful pregnancy with certolizumab in an obstetric anti-phospholipid syndrome (APS) patient with multiple miscarriages

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Citation

Madenidou, A., Kither, H., Bruce, I. The first reported successful pregnancy with certolizumab in an obstetric anti-phospholipid syndrome (APS) patient with multiple miscarriages.

Background

Obstetric anti-phospholipid syndrome (APS) is an autoimmune disorder characterised by pregnancy loss and preterm birth in the presence of antiphospholipid antibodies. Traditional therapy for APS during pregnancy has been anti-coagulation and low dose aspirin, but this does not prevent adverse pregnancy outcomes (APOs) in all cases. Mouse models of APS show placental inflammation and tumour necrosis factor (TNF)-a seems to play

a critical role with favourable pregnancy results when inhibited. Here, we present a pregnant woman with APS whose journey to motherhood confirms the role of TNF-a in APS-related APOs.

Case Report

A 30-year-old, nulliparous lady with lupus-anticoagulant (LAC) positive obstetric APS, was seen in the combined obstetric/rheumatology clinic at 7 weeks gestation as she had a history with five miscarriages (no further than 16 weeks gestation) and pre-eclampsia. She had tried oral steroids, anti-coagulation and hydroxychloroquine in previous pregnancies with no success. Based on the potential favourable outcomes of TNF-a inhibition in obstetric APS, the patient started on certolizumab 400mg followed by 200mg until 28 weeks gestation (end of funding). She also had Prednisolone 10mg, anticoagulation, aspirin 150mg and Hydroxychloroquine 200mg. After stopping cimzia, her kidney function and platelets started decreasing, and she developed proteinuria and hypertension requiring Nifedipine. Her baby continued to grow normally throughout the pregnancy. Because of severe pre-eclampsia, she had a c-section at 32 weeks gestation and gave birth to a little girl who stayed at the neonatal unit for 24 days for observation without any issues. The patient stopped taking all her tablets after birth and was seen again in the rheumatology clinic with no complaints. Her bloods and urine tests normalised.

Conclusion

To the best of our knowledge, this is the first case of an obstetric APS patient with multiple miscarriages who gave birth to a healthy baby after receiving certolizumab. Our case suggests that TNF-a inhibitors can be a potential new therapy in obstetric APS and confirms the rationale for the IMPACT study, an open-label clinical trial in women with clinical APS and LAC which aims to determine if certolizumab during pregnancy reduces the rate of adverse pregnancy outcomes.

PO8:86 | Caring for pregnant women with rheumatic and musculoskeletal diseases in Ireland: Current practices & challenges

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Citation
Maguire, S., Moore, L., Murray, K., Gorman, A., Ball, E., Riddell, C., O'Neill, M., Jordan, N., O'Shea, F., Veale, D., Donnelly, S., Murphy, G., Fitzgerald, G. Caring for pregnant women with rheumatic and musculoskeletal diseases in Ireland: Current practices & challenges.

Purpose
Pregnancy is common in women with rheumatic and musculoskeletal disease (RMD), with potential for negative outcomes for mother and baby. Guidelines exist for the management of medications in pregnancy, but is lacking in other aspects of care. This study aims to establish current practices regarding the management and monitoring of women with RMD in Ireland.

Methods
An anonymous electronic survey was distributed amongst Rheumatology consultants, trainees, nurses and allied health professionals across Ireland in March 2023. Data collected related to current structures in place for pregnancy care of women with RMD, including whether formal links with Obstetricians exist, presence of joint Rheumatology/Obstetric clinics, and challenges and barriers to managing women with RMD during pregnancy.

Results
In total 66 responses were received: 29% Consultants, 18% registrars, 27% clinical nurse specialists, 20% advanced nurse practitioners, 6% other healthcare professionals.

Pregnant women with RMDs are managed in separate Rheumatology and Obstetric clinics in 61% of cases, and combined Rheumatology and Obstetric clinics in 18%. Pre-conception counselling most commonly (61%) took place in general Rheumatology clinics. Most (56%) departments don't have a named Obstetrician managing women with complex RMD during pregnancy. Six weeks to 3 months was the most common time for review after delivery (Figure 1).

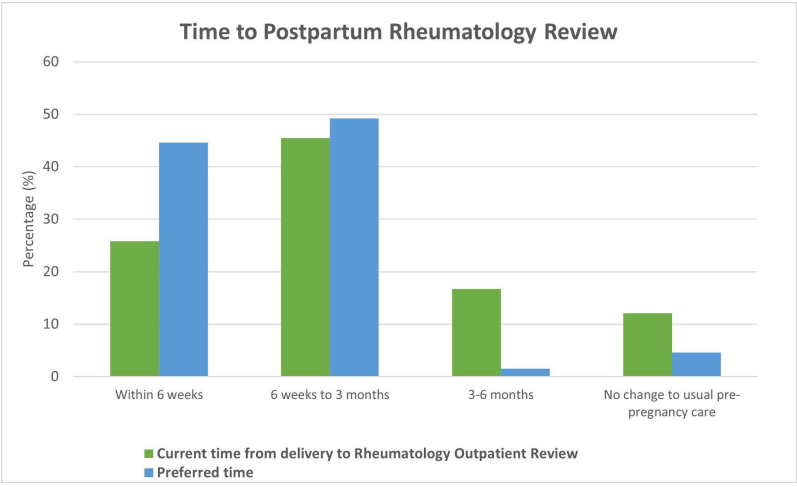


FIGURE 1

Suboptimal communication between Obstetrics and Rheumatology (23%), lack of appropriate infrastructure (17%) and complex care needs (17%) were the most significant challenges identified. The majority (65%) desired a dedicated pathway for monitoring women with RMDs in pregnancy. Most also desired a dedicated clinic, with 47% believing all women with RMD should be reviewed through this and 39% opting for it to be reserved for those with complex RMD. Common barriers to implementing a dedicated clinic included lack of clinical space (62%), limited staffing (45%) and maternity hospital not co-located with an adult general hospital (50%).

Conclusions

Significant variation exists regarding management of pregnancy in women with RMD in Ireland. The development of a national pathway for management and monitoring of women with RMD during their pregnancy would streamline care, facilitating optimisation of maternal health, control of disease activity and neonatal outcomes.

PO8:87 | Achievements and next steps of the BI-sectoral meeting on pregnancy complicated by rheumatic diseases

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Citation
Ozawa, H., Okada, M. Achievements and next steps of the BI-sectoral meeting on pregnancy complicated by rheumatic diseases.

Purpose

Collaboration between rheumatologists and obstetricians is important when a patient with rheumatic disease becomes pregnant. An interdepartmental meeting was initiated to share information within the team and to provide educational benefits to young clinicians.

Methods

Monthly joint conferences were held in the rheumatology and obstetrics departments of a tertiary care hospital in Japan. In FY2022, it was a hybrid meeting because of the COVID-19 epidemic period. The agenda consisted of: 1. reports of delivered cases, 2. discussion of pregnancy cases, 3. troubleshooting in fertility treatment, 4. improvement of interdepartmental cooperation.

Participants were asked to fill in a questionnaire about the effectiveness and problems of the meetings in the end of fiscal year.

Results

In fiscal year 2022 (April 1, 2022-March 31, 2023), a total of 16 delivery cases, 108 pregnancy cases, and 9 infertility treatment cases were discussed during the 12 meetings.

TABLE 1: Details of the 15 cases delivered at our hospital

Factor	
n	15
Age at gestation	36 [29, 41]
Background disease (primary)	
Systemic lupus erythematosus	4
Rheumatoid arthritis	3
Antiphospholipid syndrome	2
Others	6
Anti Ro/SS-A antibody positivity	4
Mode of delivery	
Spontaneous vaginal	7
Assisted vaginal	1
Elective caesarean section	2
Emergency caesarean section	5
APO	
Overall APO	2
Maternal APO	0
Fetal APO	2
Severe APO	0
Fetal event	
Total duration of gestation (days)	268 [234, 288]
Birth weight (g)	2820 [1970, 3956]
Height at birth (cm)	49 [45, 52]
Apgar score at 1 min	8 [2, 9]
Apgar score at 5 min	9 [3, 9]
Apgar score at 1 min <7	1
Apgar score at 5 min <7	1
Birth defect	0

15 cases were delivered at our hospital, 1 case was delivered at another hospital, 1 case was aborted, and 1 case was lost to follow-up due to referral to another hospital.

Details of the 15 cases delivered in our hospital are shown in Table 1. The background diseases were mainly SLE and rheumatoid arthritis. There were no maternal adverse pregnancy outcomes (APO), and two infants were born preterm. No severe APO was observed.

Fertility management issues, such as anticoagulant therapy in patients with APS, were on the agenda. Several interdepartmental agreements were initiated, including ground rules for corticosteroid coverage.

The results of the questionnaire will be presented at the conference. Respondents indicated that the introduction of the meetings had improved the psychological safety of participating clinicians. Many also expressed a desire to learn more about their counterpart's area of expertise, and a mini-lecture is being considered for inclusion in the meeting agenda.

Conclusions

Communication between rheumatologists and obstetricians has improved as a result of the interdepartmental meetings on the management of pregnancy in rheumatic diseases. It is important to continue these meetings to improve mutual understanding.

PO8:88 | Systematic improvement of completeness on data in data in the quality register revnatus

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Citation
Bjørngaard, H.B., Koksvik, H.S., Jakobsen, B. Systematic improvement of completeness on data in data in the quality register revnatus.

Purpose

RevNatus is a nationwide quality register that aims to monitor quality of the health services for women with inflammatory rheumatic disease related to pregnancy. At seven time-points from pregnancy wish to one year postpartum registrations are performed. Nationwide, 19 units enrol women in the registry. Annually about 1700 forms in more than 380 women are annually completed. The quality of the registered data is essential for systematic quality maintenance and improvement of quality.

C-reactive Protein (CRP) is essential to evaluate disease activity in inflammatory rheumatic diseases, and is an important measure in several composite disease activity indices. CRP should be measured and registered at every time-point (100 %).

The objective of this study is to determine the effect of a systematic quality improvement project in RevNatus that aims to improve the completeness of the variable <CRP>.

Methods

Deming's Circle for Quality Improvement with the principles of Plan – Do – Study – Act was utilized to reduce the number of <UNKNOWN> on the variable CRP (Plan). Each rheumatology unit received a report detailing the focus area and their specific results (Do). We reported completeness to the individual units 2-4 times during 2021 (Study). We continued the project in 2022. In addition to reporting data quality to each unit, this was a topic in newsletters sent to all units, so they could compare own results to a national score. We compared completeness of CRP with baseline data collected in 2020 to data collected in 2021 and 2022.

Results

The completeness of CRP in RevNatus improved by the end of the project.

Table 1 shows completeness of the variable <CRP> in 2020, 2021 and 2022

	2020	2021	2022
Completeness CRP	83 %	82 %	88 %

Conclusion

We saw an improvement in completeness of CRP after running a systematic quality improvement project over three years. This leads to higher quality of the data describing women's disease activity in the course of pregnancy.

The principles of Deming's circle as a method was well suited for this work.

PO8:89 | Improving quality of diagnostic data in revnatus 2020-2022

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Cittaion
Bjørngaard, H., Koksvik, H.S., Jakobsen, B. Improving quality of diagnostic data in revnatus 2020-2022.

Purpose

RevNatus is a nationwide quality register to monitor women with inflammatory rheumatic disease related to pregnancy. Nationwide, 19 units enroll women in the registry.

RevNatus register more than 60 different ICD-10 codes and one variable is whether they meet the classification- or diagnostic criteria are registered. The alternatives are: YES, NO or UNKONOWN.

To maintain the validity in the register it is important to know if the diagnosis meet the classification- or diagnostic criteria.

The objective of this study is to determine the effect of a systematic quality improvement project in RevNatus to reduce the number of UNKNOWN answers on classification- and diagnostic criteria.

Methods

Deming's Circle for Quality Improvement with the principles of Plan – Do – Study – Act was utilized to reduce the number of UNKNOWN on the variable for diagnosis according to classification- and diagnostic criteria (Plan). Each rheumatology unit received a report detailing the focus area and their specific results (Do). We reported % of UNKNOWN to the individual units 2-4 times during 2021 (Study), depending on number of registrations. We continued the project in 2022. In addition to reporting data quality to each unit, this was a topic in newsletters sent to all units, so they could compare own results to a national score.

Results

During the project period, we identified that some diagnoses tend to be more difficult to determine and required specific education (Act).

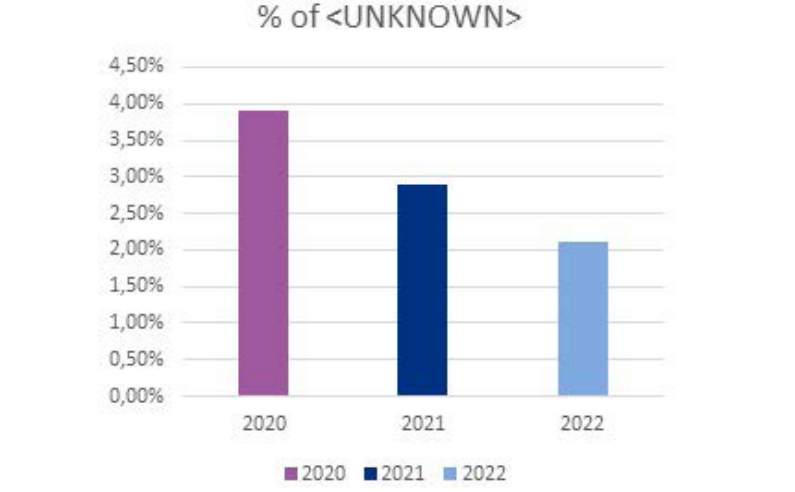


FIGURE 1

Ultimately, we saw an improvement from baseline in with 3.9 % UNKNOWN in 2020 to 2.9 % in 2021. However, we continued the focus in 2022 resulting in an additional improvement to 2.1 %.

Figure 1 shows the percentage of UNKNOWN on the variable diagnostic- and classification criteria in the period 2020 to 2022.

Conclusion

We saw a reduced use of UNKNOWN on the variable classification – and diagnosis criteria over 3 years. Now we have more accurate data on women's diagnosis and valid and comparable data for each diagnosis in RevNatus. The principles of Deming's circle as a method was well suited for this work.

PO8:90 | The usefulness of TSH as a follow-up of pregnant women with rheumatic diseases

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Citation
Ayala, S.M.D., Chapa, A.C., Serna, K.M.L., Taylor, C.M.S., Barbosa, L.P., Torres, J.R., Delgado, D.A.G. The usefulness of TSH as a follow-up of pregnant women with rheumatic diseases.

Purpose

Hypothyroidism is commonly associated with autoimmune rheumatic diseases (ARDs). The prevalence of hypothyroidism with treatment indication in ARD increases (6.3% vs. 1.9%) compared with healthy controls. Moreover, thyroid disease in pregnancy can result in miscarriage and preterm delivery, which have also been associated with ARD and may be attributed to disease activity. The TSH cut-off point of 2.5 is a valid marker of thyroid dysfunction. Detecting maternal and child dysfunction with thyroid screening allows early thyroid renormalization. We aim to describe the evolution and results of pregnant women with ARD according to their TSH level, and to determine if there is a correlation between the TSH and PCR values.

Methods

An observational, cross-sectional, retrospective study was carried out at the University Hospital "Dr. José Eleuterio González", in Mexico. We included pregnant women with ARDs with a previous thyroid profile from the Pregnancy and Reproductive Health Clinic for Rheumatic Diseases (CEER) from March 2020 to December 2022. We categorized it into two groups according to the TSH level (cut-off point, 2.5 IU/mL). The demographic characteristics and ARD data were obtained from the clinical record. The Kolmogorov-Smirnov test was used to determine normality. Data were presented as percent frequency, mean ± SD, or median and interquartile

TABLE 1: Clinical characteristics are categorized into two groups according to the TSH level

	Total	TSH < 2.5 µUI/mL	TSH > 2.5 µUI/mL	p value
	42 (100%)	27 (64.3%)	15 (35.7%)	
Age, mean ± SD	27.24 ± 6.78	28.74 ± 7.16	24.53 ± 5.22	
Pregestational hypothyroidism, n (%)	4 (9.5)	2 (7.4)	2 (13.3)	
Gestational hypothyroidism, n (%)	7 (16.7)	0 (0)	7 (46.7)	
Diagnosis, n (%)				
Rheumatoid arthritis	14 (33.3)	11 (40.7)	3 (20)	
Systemic lupus erythematosus	11 (26.2)	4 (14.8)	7 (46.7)	
Sjogren's syndrome	1 (2.4)	1 (3.7)	0	
Antiphospholipid syndrome	4 (9.5)	2 (7.4)	2(13.3)	
Undifferentiated connective tissue disease	5 (11.9)	4 (14.8)	1 (6.7)	
Juvenile idiopathic arthritis	4 (9.5)	3 (11.1)	1 (6.7)	
Dermatomyositis	3 (7.1)	2 (7.4)	1 (6.7)	
Laboratories				
TSH, median (IQR)	2.03 (1.28-2.89)	1.52 (1.04-2.00)	2.99 (2.80-6.30)	p=<0.01
PCR, median (IQR)	0.75 (0.40-1.14)	0.7 (0.41-1.13)	0.86 (0.38-2.29)	p=0.733
VSG, mean ± SD	40.24 ± 19.16	40.30 ± 19.53	40.13 ± 19.16	p=0.979
Treatment, n (%)				
Levothyroxine	10 (23.8)	3 (11.1)	7 (46.7)	
Prednisone	20 (47.6)	14 (51.9)	6 (40)	
Hydroxychloroquine	35 (83.3)	21 (77.8)	14 (93.3)	
Sulfasalazine	10 (23.8)	9 (33.3)	1 (6.7)	
Azathioprine	2 (4.8)	1 (3.7)	1 (6.7)	
Adverse effects, n (%)				
Abortions	3 (7.1)	1 (3.7)	2 (13.3)	
Preeclampsia	6 (14.3)	4 (14.8)	2 (13.3)	
Preterm delivery	3 (7.1)	3 (11.1)	0 (0)	
Neonatal death	3 (7.1)	0 (0)	3 (20)	

SD: Standard deviation, IQR: Interquartile range

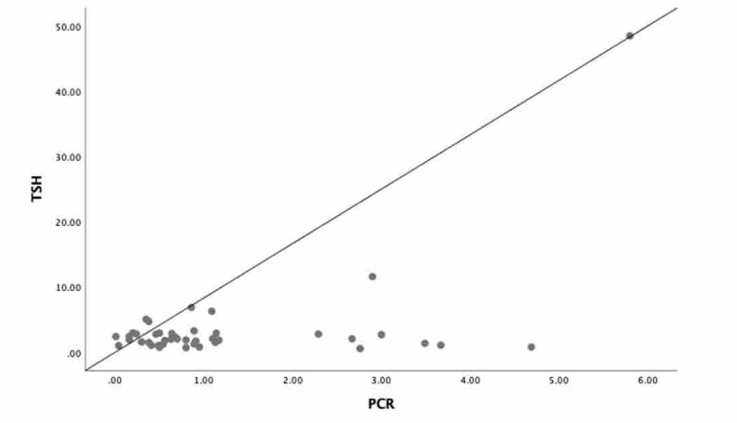


FIGURE 1
Correlation between TSH and PCR.

range as appropriate. Intergroup comparisons were made using the t-test/Mann–Whitney and Fisher's exact test. TSH and PCR values were correlated by Spearman. A significant value of $p < 0.05$ was considered.

Results

A total of 42 pregnant women with ARD were included, with a mean age of 27.24 $\pm$ 6.78 years. Gestational hypothyroidism was only reported in TSH > 2.5 IU/mL group. During the study, 15 adverse outcomes were observed (Table 1). There was no correlation between the values of TSH and PCR (r=-0.028, p=0.860) (Figure 1).

Conclusions

The TSH > 2.5 IU/mL group had a higher percentage of pregnant patients with neonatal deaths. Thyroid dysfunction is highly predominant in women with ARDs and pregnancy, which may contribute to the adverse effects of the disease. Therefore, thyroid dysfunction screening should be carried out on a systematic basis in pregnant women with ARDs.

PO8:91 | A difficult to manage pregnancy in a patient with immune thrombocytopenic purpura and a high-risk antiphospholipid profile

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Citation

Alexandru, C., Andreoli, L., Potorac, A., Cirstoiu, M., Iorgus, C., Ancuta, I., Bojinca, M., Bobirca, A. A difficult to manage pregnancy in a patient with immune thrombocytopenic purpura and a high-risk antiphospholipid profile.

Purpose

To assess the pregnancy outcome in a patient with Immune Thrombocytopenic Purpura(ITP) and high risk antiphospholipid autoantibodies(aPL) profile.

Methods

We present the case of a 24-year-old obese, Caucasian women diagnosed with ITP (juvenile onset), treated with corticotherapy during flares, with epilepsy treated with Levetiracetam and asymptomatic carrier of high-risk aPL profile, which meets several concerns regarding the treatment during her first pregnancy (unplanned).

Results

She was referred for the first time to our clinic to complete the interdisciplinary evaluation of a 11 week-pregnant female who was hospitalized four days prior in Hematology Department for severe thrombocytopenia(30x109/L). She received treatment with Dexamethasone(8mg/day) for 4 days and Aspirin(150mg/day) in addition to her antiepileptic therapy, with an important increasement of thrombocyte number. At our admission, the laboratory tests revealed mild thrombocytopenia(126x109/L) and leukocytosis, triple positive aPL, negative antinuclear antibodies panel, anti-Ro/La negative, normal complement levels, normal inflammatory serum markers, positive direct Coomb's test. A SLE diagnosis was excluded. Immunosuppressant treatment was started with Azathioprine (100mg/day-for ITP), Hydroxychloroquine(200mg/day) in addition to corticotherapy (Prednisone 15mg/day - gradually reducing the dose until 5mg) and Aspirin (150mg/day). We consider it important to temporarily delay the anticoagulation until a normal platelet count was reached and maintained. At week 25 of pregnancy, the Low Molecular Weight Heparin(LMWH) in prophylactic dosage(0.6ml/day) was associated. Monthly, the patient was evaluated by the obstetrician and rheumatologist, with favourable outcome excepting one episode of seizure due to antiepileptic therapy discontinuation, with no impact on maternal/fetal outcome. Now, at 35 weeks of pregnancy, the fetal outcome is normal

with no intrauterine growth restriction and no clinical and laboratory signs of preeclampsia, despite the mothers' comorbidities. After the latest multidisciplinary evaluation, the Aspirin was stopped, the LMWH dosage was increased at 0.8ml/day, the immunosuppressive and antiepileptic therapy were maintained, while Prednisone was tapered to 2.5mg/day. The patient will be evaluated at Gynecology Department on a weekly basis until the scheduled cesarian section.

Conclusion

The increased risk of adverse pregnancy outcomes due to the presence of the ITP, aPL carrier high risk profile, and seizure represents a real challenge with close follow-up of a multidisciplinary team.

PO8:92 | The role of uterine artery doppler in patients with connective tissue diseases and/or antiphospholipid autoantibodies: Evaluating pulsatility index and bilateral notch

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Zucchi, D., Tani, C., Monacci, F., Cascarano, G., letto, C., Elefante, E., Gori, S., Gelsi, V., Carli, L., Strigini, F., Mosca, M. The role of uterine artery doppler in patients with connective tissue diseases and/or antiphospholipid autoantibodies: Evaluating pulsatility index and bilateral notch.

Purpose

To determine whether alterations in the uterine artery Doppler are associated with increased risk of adverse pregnancy outcomes (APO) in a cohort of patients with undifferentiated connective tissues diseases (UCTD), systemic lupus erythematosus (SLE), antiphospholipid syndrome (APS) and antiphospholipid antibodies (aPL) carrier.

Methods

This is a retrospective study involving pregnancies prospectively followed by a single center. Clinical and serological data and treatments during pregnancy were recorded for each patient, and disease activity assessment was performed at every visit until puerperium. Doppler velocimetry of the uterine arteries was obtained between 19 and 21 weeks of gestation and re-assessed at 24 weeks if abnormal. Doppler assessment was considered as pathological in cases of confirmed bilateral notch or pulsatility index (PI)>1.44.

APO included proteinuric preeclampsia, preterm delivery before 37 weeks of gestation, small for gestational age (SGA) infant, low birthweight (less than 2500 grams), intrauterine growth restriction (IUGR) and intrauterine fetal death (IUFD) after 10 weeks of gestation of a morphologically normal fetus.

Results

200 pregnancies(101 UCTD, 79 SLE, 12 aPL carrier and 8 APS) from 176 women were included and characteristics of pregnancies, including factors which could have an impact on pregnancy outcome, are reported in Table 1. In 15 cases (7.5%) a pathological Doppler of uterine arteries was detected, while in the remaining 185 pregnancies (92.5%) the Doppler velocimetry was normal.

TABLE 1: Characteristics of the cohort (n=200)

Median age at conception (years, IQR)	34 (30-37)
Median disease duration at conception (years, IQR)	6 (3-11)
First pregnancy (%)	57.5
apL (%)	49.5
Renal involvement at any time during the disease course (%)	22.5
Hypertension (%)	5.0
Chronic renal failure (%)	0.5
Obesity (%)	4.0
Hypothyroidism (%)	25.5
Therapy during pregnancy	
Glucocorticoids (%) 6-methylprednisolone daily dose (mean ±SD)	35.5 4.3 ± 2.0
Azathioprine (%)	13.0
Cyclosporine (%)	3.0
Hydroxychloroquine (%)	47.0
Low dose acetylsalicylic acid during pregnancy (%)	59.0
Low molecular weight heparin (%)	38.5
Intravenous immunoglobulin (%)	5.0
Tacrolimus (%)	1.0
Active disease at conception (%)	5.5
Disease flare during pregnancy or puerperium (%)	19.0

TABLE 2: Obstetric complications

Adverse pregnancy outcome 29.5% (n=59)	
Preterm delivery <37 gestational weeks	13.5%
Premature rupture of membranes <37 gestational weeks	4.5%
SGA infant	14.5%
Preeclampsia	4.5%
IUGR	3.0%
IUFD	1.5%
Birthweight <2500 g	11.5%
Birthweight <1500 g	2.5 %

Three pregnancies ended with IUFD (1.5%), while the other 197 (98.5%) ended with a live birth; however, neonatal death occurred in 2 cases. Pregnancies outcomes are reported in Table 2.

Overall, in patients with abnormal uterine Doppler velocimetry, a significantly higher percentage of APO were recorded (53.3%vs27.6%, p=0.03). At multivariate analysis with adjustment for factors that could had an impact on pregnancy outcome (age at pregnancy, history of lupus nephritis, aPL positivity, therapy with low dose acid acetylsalicylic during pregnancy and flare during pregnancy or puerperium), the significant correlation between APO and pathological Doppler was confirmed (OR 3.81 CI 1.06 to 13.66).

Conclusions

Our study underlines the importance of monitoring pregnant patients with UCTD, SLE and APS/aPL, and uterine artery Doppler screening could be proposed to all these patients to help to predict APO.

PO8:93 | Interpretation of obstetric risk in pregnancies with SLE: Pregnancy outcome in patients with systemic lupus erythematosus

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Citation

Rosta, K., Schindler, S., Horvath, M., Riedmann, M., Leitner, H., Heinzl, F., Mandl, P., Mazzucato-Puchner, A. Interpretation of obstetric risk in pregnancies with SLE: Pregnancy outcome in patients with systemic lupus erythematosus.

Introduction

Women with systemic lupus erythematosus (SLE) are commonly advised against bearing children due to high-risk for complications This paradigm has been changing, due to increasing access to targeted therapies and high-risk obstetric centres.

Aim

We aimed to investigate maternal and fetal complications in pregnant with SLE compared to a high-risk pregnancy cohort (HR) from a tertiary university centre and the standard-risk (SR) general population from the Austrian Birth Registry (ABR).

Methods

In this retrospective analysis, the incidence of neonatal and maternal complications of pregnancies of women with SLE at our outpatient clinic between 01.01.2004 to 30.06.2020 were matched 1:3 by age, BMI and year of birth and compared to a high-risk cohort from the same department, a progressive tertiary obstetric centre in Vienna, Austria and to a SR cohort from the ABR. Maternal and neonatal outcomes were compared. Categorical variables were compared using the Pearson Chi^2 test and Fisher's exact test and continuous variables with the Wilcoxon rank sum test respectively.

Results

100 women with systemic lupus erythematosus were compared to 300 women with high-risk pregnancies and to 207,039 women with standard-risk pregnancies. Maternal demographic characteristics did not differ significantly between the three groups. The incidence of composite maternal complications (pre-eclampsia, HELLP syndrome, pregnancy-related hypertension, gestational diabetes mellitus, maternal death, thromboembolic events) was significantly higher in the SLE group than in the SR group (28% vs 6.28% SLE vs SG, $p<0.001$) and did not differ between the SLE and the HR groups (28% vs 29.6% SLE vs HR group, $p=0.80$). The incidence of composite fetal complications (preterm birth

before SSW 37, stillbirths, IUFT, birth weight less than 2500 g, IUGR, LGA, admission to neonatal intensive care unit, 1 and 5 minute Apgar <7) was also higher in the SLE group than in the SR group. (55% vs 25,54% SLE vs SR p<0.001) while higher incidence of adverse fetal outcome was detected in the HR group thein in the SLE group (55% vs 75% SLE vs. HR group, p=0.0005).

TABLE 1: Maternal complications in SLE, high-risk and standard-risk groups

	SLE N=100	**HR N=300**	**SR N=207039**	**p1/p2**
Maternal complication as composite outcome (%)	28 (28,0)	89 (29.6)	12998 (6.28)	0.80/ 0.001*
Preeclampsia/ Eclampsie/ HELLP/ Pregnancy induced hypertension (%)	21 (21.0)	61 (20.33)	1576 (0.76)	0.33/0.001*
Gestational diabetes mellitus (%)	11 (11.0)	60 (20.0)	11230 (5.42)	0.054/0.004*
Maternal death (%)	1 (1.0)	2 (0.7)	24 (0.01)	1/0.001*
C-section (%)	59 (59)	209 (70.1)	61421 (29.67)	0.0005*/0.001*
Thromboembolic events (%)	1 (1.0)	3 (1.0)	264 (0.13)	1/0.001*

p1 SLE vs HR group, p2 SLE vs standard-risk group, * p<0.05, nach Chi-Quadrat Test
Abbreviations: GDM gestational diabetes mellitus, HELLP Hemolysis, Elevated Liver enzymes and Low Platelets

TABLE 2: Fetal and neonatal complications in SLE, high-risk and standard-risk groups

	SLE N=100	HR N=300	SR N=207039	p1/p2
Fetal complication as composite outcome (%)	55 (55.0)	227 (75.0)	52878 (25,54)	0.0005*/ 0.001*
Preterm birth <37th gw (%)	27 (27.0)	119 (39.7)	16148 (7.68)	0.032*/<0.001*
Preterm birth <28th gw (%)	7 (7.0)	13 (4.3)	1098 (0,52)	0.44/ 0.01*
IUGR (%)	11 (11)	23 (7.60)	697 (0.33)	0.45/0.002*
Birth weight under 2500gr (%)	30 (30.0)	118 (40.0)	13508 (6.42)	0.10/ 0.001*
Admission to neonatal intensive unit (%)	23 (23.0)	80 (26.7)	15751 (7.49)	0.51 / 0.001*
Perinatal mortality (%) in 7 days after birth	2 (2.0)	5 (1.7)	410 (0.19)	1 / 0.017*
Stillbirth (%)	3 (3.0)	10 (3.3)	700 (0.33)	1 / 0.005*
1 oder 5 minute Apgar Score under 7 (%)	4 (4.0)	22 (7.3)	11381 (5.49)	0.35/ 0.41

p1 SLE vs HR group, p2 SLE vs standard-risk group,* p<0.05, nach Chi-Quadrat Test
Abbreviations: HR high-risk, SR standard-risk, gw gestational week, IUGR intrauterine growth retardation

Conclusion

Despite advances in therapy and counselling the incidence of pregnancy complications remain increased in women with SLE compared to the standard population. Maternal risk seems to be similar, however composit fetal risk appears to be higher in the group of high-risk pregnancies.

Counselling of women with SLE should provide information on the risks for elevated fetal and maternal complications, this counselling should put the

possible risks in context of the background risk from the general population and of high-risk obstetric situations. Such a counselling enables women to make informed decisions in situations where maternal and fetal risk cannot be eliminated entirely only optimized.

PO8:95 | Glucocorticoids impact on pregnancy outcomes in women with systemic lupus erythematosus

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Citation

Nicolau, R.N., Beirão, T., Guimarães, F., Santos, I., Ganhão, S., Aguiar, F., Rodrigues, M., Martins, N., Bessa, S., Rocha, A., Brito, I. Glucocorticoids impact on pregnancy outcomes in women with systemic lupus erythematosus.

Purpose
Women with systemic lupus erythematosus (SLE) have a higher risk of adverse pregnancy outcomes (APOs), mainly due to high disease activity. Glucocorticoids (GC) represent one of the most used treatments for managing disease activity during pregnancy. The purpose of this study was to evaluate the effect of GC on obstetric outcomes in women with SLE.

Methods
We investigated 28 pregnant patients with SLE, who were managed throughout pregnancy to puerperium in two Portuguese Rheumatology centres. The data from medical records were collected retrospectively and the association between the use of GC during pregnancy and APOs was evaluated.

Results
Median age at delivery was 33.5 (IQR 30-38.7) years and median disease duration was 5.3 (IRQ 1.6-11) years. Eighteen women (64.3%) had preconception counselling and 26 (92.9%) achieved an Lupus Low Disease Activity State (LLDAS) at conception. 17 patients were treated with GC throughout pregnancy and breastfeeding, with a median dose of 6.1 (IQR 4.3-8.4) mg/day. In two patients GC dose had to be increased, one of which oral dose was increased to 20 mg/day, while the other was treated with 500 mg methylprednisolone intravenous pulses in 3 consecutive days, due to lupus nephritic relapse. There were 5 (15.6%) spontaneous abortion and 26 (81.3%) live births, with a median gestational age at delivery of 38 (IQR 36-39) weeks. The median birth weight of newborns was 2840 (IQR 2443-3220) g. APOs occurred in 14 (50%) women, and these included spontaneous abortion previously described, 9 (28.1%) preterm deliveries, 5 (15.6%) premature rupture of the membranes, 8 (25%) intrauterine growth restriction, 9 (28.1%) low birth weight neonates and 2 (6.3%) postpartum

hemorrhages. There were no significant differences in the rate of GC use, dosage or increasing dose of GC during pregnancy between patients with APOs and those without.

TABLE 1: Patients' characteristics, disease activities and treatment

Patient's characteristics (n=28)	
Median age at delivery, years	**33.5 (30-38.7)**
Median disease duration, years	**5.3 (1.6-11)**
Autoantibody positivity, n (%)	
Anti-SS-A antibody	8 (28.6)
Antiphospholipid antibodies	10 (35.7)
LAC/anti-cardiolipin/anti-CLβ2GP1	7 (25)/5 (17.9)/7 (25)
Number of positive antibodies (single/double/triple)	2 (7.1)/7 (25)/2 (7.1)
Comorbidities, n (%)	
Hypertension	5 (17.9)
Diabetes Mellitus	1 (3.6)
Thyroid disease	3 (10.7)
Lupus Nephritis, n (%)	**5 (17.9)**
Preconception counselling, n (%)	18 (64.3)
Disease activity parameters, n (%)	
LLDAS at conception	26 (92.9)
Flare during pregnancy	10 (35.7)
Treatment during pregnancy	
Immunosuppressant, n (%)	13 (46.4)
Hidroxychloroquine, n (%)	15 (53.6)
Glucocorticoid, n (%)	**17 (60.7)**
Median dose mg/day	6.1 (4.3-8.4)
Increasing doses used, n (%)	2 (7.1)
Metilprednisolone pulses, n (%)	1 (3.6)

Values are shown as median (IQR) or n (%). LAC lupus anti-coagulant, CLß2GP1 cardiolipin-beta 2 glycoprotein 1, LLDAS lupus low disease activity state.

TABLE 2: Pregnancy outcomes

Pregnancy outcomes			
Gestational diabetes, n (%)			**1/30 (3.3)**
Twin pregnancy, n (%)			2/30 (6.6)
Cesarean section, n (%)			**5 (16.6)**
	N =32		
Live birth, n (%)			**26 (81.3)**
Gestational age at delivery, weeks			38 (36-39)
Birth weight of newborns, g			2840 (2443-3220)
APOs, n (%)			
PB			9 (28.1)
PROM			5 (15.6)
LBW newborns			9 (28.1)
IUGR			8 (25)
PPH			2 (6.3)
Neonatal loss			
Spontaneous abortion, n (%)			5 (15.6)
	APOs (+) n=16	**APOs (-) n=16**	*p* value
Glucocorticoid use, n (%)	10 (62.5)	9 (56.3)	0.72
Median glucocorticoid dose, mg/day	7.5 (5-12.5)	5 (5-7.5)	0.22
Increase in the glucocorticoid dose, n (%)	3 (18.8)	0	0.26

Values are shown as median (IQR) or n (%). APOs adverse pregnancy outcomes, PB preterm birth, LBW low birth weight, PROM premature rupture of the membranes, IUGR intrauterine growth restriction, PPH postpartum hemorrhage.

Conclusion

In our study pregnancies complicated by SLE were managed with low GC dose without adding significant risk of APOs. This emphasises the importance of controlling disease activity using the minimal effective GC dose to safely treat active disease manifestations.

PO9:96 | Reproductive history and HPV vaccination awareness among female rheumatology patients

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Purpose
Preliminary data suggest an association between systemic rheumatic diseases (SRDs) and Pap smear abnormalities. Women with SRDs also may be more vulnerable to the effects of HPV infection. Thus, we aimed to assess characteristics associated with abnormal Pap smears in female rheumatology patients.

Methods
Women aged 18-65 years seen by a Hospital for Special Surgery rheumatologist at least twice between 2020-2022 were recruited to the Rheumatology Women's Reproductive Health and Wellness Cohort. This study included cohort members who responded to questions on rheumatological and reproductive history, lifestyle factors, and HPV vaccination awareness. We excluded participants reporting no prior Pap smears and those unsure of their Pap smear result. We used descriptive statistics to compare differences between those reporting at least one prior abnormal (PA) Pap smear result to those with no prior abnormal (NPA) results.

Results
Of the 585 participants in the cohort, 554 self-reported knowledge of a Pap smear result. Of these 554 participants, no demographic differences were noted between the PA and NPA groups. PA subjects were more likely to have lupus or a lupus-like condition, to be sexually active, and have higher rates of smoking and alcohol use. Both groups had similar rates of gynecological diagnoses, except PA subjects more commonly reported uterine fibroids. Cervical cancer screening rates were high in both groups, although PA subjects were more likely to report prior screening. PA subjects were more likely to correctly report that the following statement is false: "Very few sexually active adults have been exposed to HPV."

TABLE 1: Demographic, rheumatological lifestyle and reproductive characteristics among women with a prior Pap smear who were evaluated by rheumatologists at a tertiary academic center stratified by Pap smear abnormality

Characteristics	Abnormal Pap Smear (N = 195)	No Abnormal Pap Smear (N = 359)	p-value
Demographics			
Current age (years)	46.6 (11.0)	46.9 (13.0)	0.78
Race • White • Non-white (includes multiracial) • Missing*	 143 (73.3) 45 (23.1) 7 (3.6)	 282 (78.6) 69 (19.2) 8 (2.2)	0.25
Ethnicity • Hispanic or Latina/x • Not Hispanic or Latina/x • Missing*	 22 (11.3) 171 (87.7) 2 (1.0)	 40 (11.1) 315 (87.7) 4 (1.1)	0.96
Highest level of education • Bachelor's degree or higher • Have not completed bachelor's degree • Missing*	 166 (85.1) 29 (14.9) 0 (0.0)	 285 (79.4) 72 (20.1) 2 (0.6)	0.12
Relationship status • Married/partnered • Single, divorced/separated, or widowed • Missing*	 136 (69.7) 58 (29.7) 1 (0.5)	 239 (66.6) 117 (32.6) 3 (0.8)	0.48
Rheumatology History and Other Risk Factors			
Rheumatology diagnosis** • Inflammatory arthritis[1] • **Lupus and lupus-like conditions[2]** • Vasculitis, myositis, and SSc[3] • Other autoinflammatory conditions[4] • Missing*	 97 (49.7) **88 (45.1)** 17 (8.7) 11 (5.6) 1 (0.5)	 207 (57.7) **123 (34.3)** 35 (9.7) 37 (10.3) 1 (0.3)	 0.08 **0.01** 0.70 0.06 N/A
Current medications** • None • Antimalarials • Biologics • DMARDs or Immunosuppressives • Antiplatelet/Anticoagulant • Steroids • JAK inhibitors • Other • Missing*	 26 (13.3) 84 (43.1) 71 (36.4) 63 (32.3) 15 (7.7) 65 (33.3) 10 (5.1) 30 (15.4) 4 (2.0)	 40 (11.1) 139 (38.7) 149 (41.5) 107 (29.8) 26 (7.2) 94 (26.2) 19 (5.3) 59 (16.4) 3 (0.8)	 0.42 0.26 0.29 0.48 0.82 0.06 0.96 0.79 N/A
Smoking status • **Ever smoker** • **Never smoked** • **Missing***	 **47 (24.1)** **145 (74.4)** **3 (1.5)**	 **62 (17.3)** **293 (81.6)** **4 (1.1)**	**0.049**
Alcohol use • **Current use** • **Prior use or never used** • **Missing***	 **142 (72.8)** **53 (27.2)** **0 (0.0)**	 **219 (61.0)** **134 (37.3)** **6 (1.7)**	**0.01**

(Continued)

(Continued)

Reproductive and Gynecologic History			
Sexually active • **Currently sexually active** • Formerly sexually active • **Never sexually active** • Missing*	 **140 (71.8)** 51 (26.2) **0 (0.0)** 4 (2.0)	 **212 (59.1)** 104 (29.0) **17 (4.7)** 26 (7.3)	 **0.02** 0.27 **<0.01** N/A
Sexual partners** • Men • Women • Missing*	 187 (97.9) 8 (4.2) 4 (2.0)	 298 (94.3) 25 (8.2) 43 (12.0)	 0.05 0.10 N/A
HPV vaccination status • HPV vaccine series complete • Did not start HPV vaccine series • Unsure or partial vaccination • Missing*	 50 (25.6) 120 (61.5) 24 (12.3) 1 (0.5)	 100 (27.9) 204 (56.8) 54 (15.0) 1 (0.3)	0.50
Age at last HPV dose*** • <13 years • 14-26 years • >26 years • Not sure/Missing*	 6 (12.0) 33 (66.0) 9 (18.0) 2 (4.0)	 16 (16.0) 61 (61.0) 9 (9.0) 14 (14.0)	0.32
Reason for not starting HPV series**,**** • **I was not offered the vaccine** • Did not know it was important for me • **Other†** • Missing*	 **81 (67.5)** 17 (14.2) **37 (30.8)** 0 (0.0)	 **167 (81.9)** 15 (7.4) **31 (15.2)** 8 (3.9)	 **<0.01** 0.06 **<0.01** N/A
Last Pap smear*** • <1 year ago • 1-3 years ago • >3 years ago • Unsure* • Missing*	 123 (63.1) 57 (29.2) 15 (7.7) 0 (0.0) 0 (0.0)	 191 (53.2) 129 (35.9) 30 (8.4) 8 (2.2) 1 (0.3)	0.15
Gynecological diagnosis** • PCOS • Endometriosis • **Uterine fibroids** • Missing*	 17 (8.7) 23 (11.8) **57 (29.2)** 120 (61.5)	 28 (7.8) 45 (12.5) **57 (15.9)** 245 (68.2)	 0.71 0.80 **<0.01** N/A
Cervical cancer screening - **Had cervical cancer screening** - Overdue for cervical cancer screening - Discussed cervical cancer screening with rheumatologist	 **170 (87.2)** 24 (12.3) 36 (18.5)	 **272 (75.8)** 56 (15.6) 65 (18.1)	 **<0.01** 0.34 0.92

*Missing or unsure subjects excluded from statistical test
**Subcategories are not mutually exclusive
1. Inflammatory Arthritis: Adult Onset Still's Disease, Inflammatory Arthritis (not otherwise specified), Juvenile Idiopathic Arthritis, Psoriatic Arthritis, Rheumatoid Arthritis
2. Lupus and Lupus-like conditions: Antiphospholipid Syndrome, Lupus, Mixed Connective Tissue Disease, Sjogren's Syndrome, Undifferentiated Connective Tissue Disease
3. Vasculitis, Myositis, and Systemic Sclerosis: Behcet's, Myositis, Systemic Sclerosis, Vasculitis
4. Other autoinflammatory conditions: Eye inflammation, gout or pseudogout, IgG-4-related disease, Autoinflammatory Syndrome, Polymyalgia Rheumatica, Sarcoidosis, Other SRD
***For the PA group, N=50; for the NPA group, N=100; these are subjects who reported completing HPV vaccination
****For the PA group, N=120; for the NPA group, N=204; these are subjects who reported never beginning HPV vaccination
†"Other" includes subjects who do not receive vaccines in general, who are concerned that vaccination would trigger a flare, who are concerned about vaccine side effects, and who self-report other reasoning

TABLE 2: HPV awareness among respondents with a prior Pap smear N (%) correct*

Question	Abnormal Pap Smear (N = 195)	No Abnormal Pap Smear (N = 359)	p-value
HPV vaccination is recommended to begin at 11-12 years of age, but can be started at age 9 (TRUE)	182 (93.3)	323 (90.0)	0.18
Very few sexually active adults have been exposed to HPV (FALSE)	**193 (99.0)**	**337 (93.9)**	**<0.01**
HPV vaccination treats existing HPV (FALSE)	177 (90.8)	319 (88.9)	0.48
HPV vaccination is recommended for all women under 26 (TRUE)	176 (90.3)	315 (87.7)	0.37
HPV vaccination is never recommended for women older than 26 (FALSE)	153 (78.5)	272 (75.8)	0.47
HPV vaccination is never recommended for men (FALSE)	179 (91.8)	319 (88.9)	0.27
**Correct responses are denoted in parentheses*			

Conclusions

Women evaluated by rheumatologists at our tertiary musculoskeletal center with prior abnormal Pap smears were more likely to have lupus/lupus-like conditions, currently use alcohol, have a history of smoking, be sexually active, have uterine fibroids, and report cervical cancer screening than those with normal Pap smears. While education level was high across the cohort, those with abnormal Pap smears showed greater awareness of the common risk of HPV exposure among sexually active adults. As ongoing cohort recruitment is underway, future multivariable analyses will help identify factors associated with abnormal Pap smears and HPV awareness in female rheumatology patients.

PO9:97 | Attitudes, experiences, and knowledge related to fertility therapies among women with rheumatic and musculoskeletal disease

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Citation

Adurty, S., Masto, L., Smole, A., Siegel, C., Lieber, S., Levine, J.M., Stamm, B., Mandl, L.A., Lockshin, M., Barbhaiya, M., Sammaritano, L.R. Attitudes, experiences, and knowledge related to fertility therapies among women with rheumatic and musculoskeletal disease.

Purpose

Women with rheumatic and musculoskeletal disease (RMD) have decreased fertility, likely due to teratogenic medications, psychosocial stress, and desires to avoid pregnancy during active disease. Although safe and effective assisted reproductive technology (ART) is available, fertility awareness remains low. Here, we evaluate how fertility concerns, attitudes towards ART, and knowledge of in-vitro fertilization (IVF) success are affected by demographic, reproductive, and disease-related factors among women with RMD.

Methods

We enrolled women ages 18-65 seen >/= 2 times by a Hospital for Special Surgery rheumatologist from 2020-2022 in the Rheumatology Women's Reproductive Health and Wellness Cohort. Using descriptive analyses, we assessed how disease activity, medications, obstetric/gynecologic history, and demographics influence fertility concerns, consideration of egg freezing, and use of other fertility therapies (ovarian stimulation, intrauterine insemination, IVF) among reproductive-aged women (18-45 years) with RMD. We also assessed knowledge of IVF success in reproductive-aged versus older women (46-65 years) with RMD.

Results

In this interim analysis, 534 women provided information on fertility; 253 (47.4%) were reproductive aged. Of these, 127 (50.2%) reported fertility concerns; 18 (7.1%) froze their eggs; 105 (41.5%) have considered egg freezing; and 29 (11.5%) reported pursuing other fertility therapies (Table 1). Age <40 years and no previous pregnancy were both associated with

TABLE 1: Subjective fertility concerns, attitudes towards egg freezing, and prior use of fertility therapies among reproductive-aged women with RMD

Variable*	Total (N = 253)	*Are you concerned you will have difficulty becoming pregnant as a result of your rheumatologic or musculoskeletal condition or related medication(s)?*			*Have you ever considered freezing your eggs to preserve your future fertility?*			*Have you ever used any other forms of fertility therapy (not including egg freezing) in the past?*		
		Yes (N = 127)	Not Yes [†] (N = 125)	*P*	Yes [‡] (N = 123)	No (N = 129)	*P*	Yes (N = 29)	No (N = 224)	*P*
Demographics										
Age at Cohort Consent				**< 0.001**			**0.004**			**0.001**
• 18-29	68 (27)	40 (31)	28 (22)		41 (33)	27 (21)		1 (3)	67 (30)	
• 30-39	120 (47)	73 (57)	47 (38)		61 (50)	58 (45)		13 (45)	107 (48)	
• 40-45	65 (26)	14 (11)	50 (40)		21 (17)	44 (34)		15 (52)	50 (22)	
Race				0.966			0.690			0.677
• White only	189 (75)	95 (75)	93 (74)		90 (73)	98 (76)		23 (79)	166 (74)	
• Non-white (includes multiracial)	59 (23)	30 (24)	29 (23)		30 (24)	29 (22)		6 (21)	53 (24)	
• *Prefer Not to Answer*	5 (2)	2 (2)	3 (2)		3 (2)	2 (2)		0 (0)	5 (2)	
Hispanic or Latina Ethnicity				0.668			0.869			0.604
• Yes	24 (9)	11 (9)	13 (10)		12 (10)	12 (9)		2 (7)	22 (10)	
• No	227 (90)	114 (90)	112 (90)		109 (89)	117 (91)		27 (93)	200 (89)	
• *Prefer Not to Answer*	2 (1)	2 (2)	0 (0)		2 (2)	0 (0)		0 (0)	2 (1)	
Bachelor's Degree or Higher				**0.010**			**0.004**			0.312
• Yes	231 (91)	122 (96)	108 (86)		119 (97)	111 (86)		28 (97)	203 (91)	
• No	21 (8)	5 (4)	16 (13)		4 (3)	17 (13)		1 (3)	20 (9)	
• *Prefer Not to Answer*	1 (0)	0 (0)	1 (1)		0 (0)	1 (1)		0 (0)	1 (0)	
Private Medical Insurance				**0.029**			0.118			0.378
• Yes	234 (92)	122 (96)	111 (89)		117 (95)	116 (90)		28 (97)	206 (92)	
• No [1]	19 (8)	5 (4)	14 (11)		6 (5)	13 (10)		1 (3)	18 (8)	
Religious Affiliation				0.1975			0.081			**0.049**
• Yes	160 (63)	82 (65)	77 (62)		82 (67)	78 (60)		23 (79)	137 (61)	
• No	73 (29)	31 (24)	42 (34)		28 (23)	44 (34)		4 (14)	69 (31)	
• *Prefer Not to Answer*	20 (8)	14 (11)	6 (5)		13 (11)	7 (5)		2 (7)	18 (8)	
Factors Related to RMD										
Systemic Rheumatic Disease Diagnosis				0.913			0.637			0.975
• Lupus and Lupus-like Conditions [2]	70 (28)	33 (26)	37 (30)		37 (30)	32 (25)		8 (28)	62 (28)	
• Inflammatory Arthritis [3]	104 (41)	51 (40)	53 (42)		49 (40)	55 (43)		14 (48)	90 (40)	
• Vasculitis, Myositis, and Systemic Sclerosis [4]	16 (6)	8 (6)	8 (6)		8 (7)	8 (6)		2 (7)	14 (6)	
• Multiple Conditions [5]	33 (13)	18 (14)	14 (11)		15 (12)	18 (14)		3 (10)	30 (13)	
• Other Autoinflammatory Conditions [6]	5 (2)	3 (2)	2 (2)		4 (3)	1 (1)		0 (0)	5 (2)	
• Other [7]	25 (10)	14 (11)	11 (9)		10 (8)	15 (12)		2 (7)	23 (10)	
Most Recent Disease Flare				0.917			0.633			0.595
• Currently or Within the Last Year	172 (68)	89 (70)	82 (66)		87 (71)	85 (66)		21 (72)	151 (67)	
• Greater than 1 Year Ago	43 (17)	22 (17)	21 (17)		20 (16)	23 (18)		4 (14)	39 (17)	
• Other [8]	38 (15)	16 (13)	22 (18)		16 (13)	21 (16)		4 (14)	34 (15)	

(Continued)

(Continued)

Received a Teratogenic Medication in Last Year				0.596			0.068			**0.019**
• Yes [9]	58 (23)	31 (24)	27 (22)		35 (28)	23 (18)		2 (7)	56 (25)	
• No [10]	173 (68)	85 (67)	87 (70)		80 (65)	92 (71)		26 (90)	147 (66)	
• Unknown [11]	22 (9)	11 (9)	11 (9)		8 (7)	14 (11)		1 (3)	21 (9)	
Obstetric & Gynecologic History										
Ever pregnant?				**< 0.001**			**< 0.001**			**< 0.001**
• Yes	91 (36)	30 (24)	60 (48)		29 (24)	62 (48)		25 (86)	66 (29)	
• No	133 (53)	84 (66)	49 (39)		83 (67)	50 (39)		3 (10)	130 (58)	
• Prefer Not to Answer	1 (0)	1 (1)	0 (0)		1 (1)	0 (0)		0 (0)	1 (0)	
• Missing	28 (11)	12 (9)	16 (13)		10 (8)	17 (13)		1 (3)	27 (12)	
Comorbid Gynecologic Diagnosis				0.241			**0.048**			0.278
• Yes [12]	73 (29)	41 (32)	32 (26)		43 (35)	30 (23)		11 (38)	62 (28)	
• No	176 (70)	84 (66)	91 (73)		79 (64)	96 (74)		18 (62)	158 (71)	
• Prefer Not to Answer	4 (2)	2 (2)	2 (2)		1 (1)	3 (2)		0 (0)	4 (2)	

* All data is presented as N (% respondents to each question)

† Includes "No" and "Not relevant to me"

‡ Includes "Yes - I have done it" (N = 18) and "Yes - I have considered but not done it" (N = 105)

[1] Includes Medicare, Medicaid, No insurance, and Other (not specified)

[2] Lupus and Lupus-like Conditions: Antiphospholipid Syndrome, Lupus, Mixed Connective Tissue Disease, Sjogren's Syndrome, Undifferentiated Connective Tissue Disease, Other - Discoid Lupus

[3] Inflammatory Arthritis: Adult Onset Stills Disease, Inflammatory Arthritis (not otherwise specified), Juvenile Idiopathic Arthritis, Psoriatic Arthritis, Rheumatoid Arthritis

[4] Vasculitis, Myositis, and Systemic Sclerosis: Behcets, Myositis, Systemic Sclerosis, Vasculitis, Other - Eosinophilic Fasciitis

[5] Multiple Conditions: includes patients who have multiple rheumatic disease diagnoses

[6] Other Autoinflammatory Conditions: Eye Inflammation, Gout or Pseudogout, IgG-4-related Disease, Autoinflammatory Syndrome, Polymyalgia Rheumatica, Sarcoidosis

[7] Includes women who do not have systemic rheumatic disease, but rather only reported non-autoimmune musculoskeletal conditions (Bursitis, Degenerative Disease, Fibromyalgia, Injury, Muscle Ache/Pain, Osteoarthritis, Osteoporosis, Raynauds, Trigger Finger), or who responded "I do not know my systemic rheumatologic diagnosis", or "Prefer Not to Answer"

[8] Includes women who responded "I do not recall my last flare", "I do not have disease flares", "Prefer Not to Answer", and women who do not have systemic rheumatic disease

[9] Teratogenic Medications: Cyclophosphamide, Leflunomide, Methotrexate, Mycophenolate Mofetil, Nintedanib, Thalidomide, Warfarin

[10] Includes women who reported having received no medications, as well as the following non-teratogenic medications: Adalimumab, Anakinra, Antiplatelets, Azathioprine, Certolizumab, Chloroquine, Colchicine, Etanercept, Heparins, Hydroxychloroquine, Infliximab, IVig, Secukinumab, Steroids, Sulfasalazine, Tacrolimus, and Ustekinumab

[11] Includes medications for which medication teratogenicity remains unknown: Abatacept, Allopurinol, Anifrolumab, Apremilast, Avacopan, Baricitinib, Belimumab, Canakinumab, Direct oral anticoagulants, Denosumab, Golimumab, Guselkumab, Ixekizumab, Mepolizumab, Rilonacept, Risakizumab, Rituximab, Sarilumab, Tocilizumab, Tofacitinib, and Upadacitinib

[12] Includes Polycystic Ovarian Syndrome, Endometriosis, Uterine Fibroids, and Gynecologic Cancer

TABLE 2: Knowledge of age-related success rates of IVF cycles among women with RMD

Please provide your best estimate of the likelihood of successful pregnancy (ie having a live newborn) for a single IVF cycle for women at each of the following ages.[*]	Total (N = 534)	Of Reproductive Age (18-45 years old) (N = 253)	Outside Reproductive Age (46-65 years old) (N = 281)	*P*
25-year-old woman				0.636
Correct (45-74%)	174 (33)	85 (34)	89 (32)	
Incorrect	360 (67)	168 (66)	192 (68)	0.442
• Overestimating	207 (58)	93 (55)	114 (59)	
• Underestimating	153 (43)	75 (45)	78 (41)	
35-year-old woman				0.701
Correct (25-44%)	196 (37)	95 (38)	101 (36)	
Incorrect	338 (63)	158 (62)	180 (64)	**0.017**
• Overestimating	190 (56)	78 (49)	112 (62)	
• Underestimating	148 (44)	80 (51)	68 (38)	
40-year-old woman				0.147
Correct (11-24%)	192 (36)	99 (39)	93 (33)	
Incorrect	342 (64)	154 (61)	188 (67)	0.107
• Overestimating	183 (54)	75 (49)	108 (57)	
• Underestimating	159 (46)	79 (51)	80 (43)	

[*] Possible answers for all three questions were: 0-10%, 11-24%, 25-44%, 45-74%, and ≥ 75%. Correct answers were obtained from the 2020 national ART data reported by the Centers for Disease Control (Centers for Disease Control and Prevention. *2020 Assisted Reproductive Technology Fertility Clinic and National Summary Report*. US Dept of Health and Human Services; 2022.)

[†] Data is reported as N (% total number of women in each age category)

greater fertility concern, more openness to egg freezing, but less frequent use of other fertility therapies (all p<0.01). Fertility concern was greater in women with private insurance (p=0.03) and a college education (p=0.01). Consideration of egg freezing was higher in women with a college education (p<0.01) and gynecologic comorbidities (p=0.048). Use of other fertility therapies was associated with religious affiliation (p=0.049) and receiving teratogenic medications (p=0.02). Only 33-37% of women with RMD correctly identified IVF success rates (Table 2). Younger women underestimated true rates, while older women overestimated them (p=0.02).

Conclusions

Half of reproductive-aged women with RMD report fertility concerns, with >40% considering egg freezing and >10% previously using other fertility therapies. Responses are affected by age, education, insurance, religious affiliation, teratogenic medication use, pregnancy history, and gynecologic comorbidities. Improved education about fertility therapies is needed for women facing fertility challenges due to RMD.

PO9:98 | Factors associated with HPV vaccination in individuals with rheumatic diseases

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Citation

Siegel, C., Robinson, L., Jannat-Khah, D., Mikhaylov, A., Pan, N., Sammaritano, L. Factors associated with HPV vaccination in individuals with rheumatic diseases.

Purpose

Individuals with rheumatic diseases (RDs) may be at increased risk of Human Papilloma Virus (HPV) infection and related cancers due to immune dysregulation and immunosuppression. The HPV vaccine is safe and immunogenic in RD patients, but uptake is suboptimal. We aimed to evaluate

factors associated with HPV vaccination in individuals with RDs to guide efforts to address this established gap in health care delivery.

Methods

This study included individuals aged 16-22 seen by a Hospital for Special Surgery (HSS) rheumatologist >/=2 times from 2020-2022. We excluded individuals with no RD diagnosis and with primary residence outside New York State (NYS), as vaccine information was linked to a NYS registry. We ascertained demographic and vaccination information from an automated electronic health record report and confirmed RD diagnosis and immunosuppressive medication information by chart review. We used descriptive statistics to compare variables between patients who had received 0-1 HPV vaccine doses ("unvaccinated") versus 2-3 doses ("vaccinated").

Results

321/671 (47.8%) patients aged 16-22 seen >/=2 times by an HSS rheumatologist from 2020-2022 had an RD diagnosis and NYS residence. Mean age was 20 $\pm$ 2.1 years, 233 (72.6%) were female, and 161 (50.2%) were unvaccinated. Compared to those who were vaccinated, unvaccinated individuals were more frequently White (70.8% vs 50.6%, group p=0.001), not Hispanic/Latino (75.2% vs. 71.3%, group p=0.005), privately insured (83.2% vs. 70.0%, group p<0.001), and less frequently had ever received an influenza vaccine (60.2% vs. 96.9%, p<0.001).

RD diagnosis differed by vaccine status (p=0.007): inflammatory arthritis (IA) was more common in the unvaccinated group (60.9% vs. 54.4%) and connective tissue disease (CTD) was less common in the unvaccinated group (21.1% vs. 37.5%) (Table).

TABLE 1: Demoraphic and clinical characteristics of patients aged 16-22 with Rheumatic disease stratified by HPV vaccination status

Variable	Unvaccinated (N=161)	Vaccinated (N=160)	p-value[1]
Age, yrs – mean (SD)	19.5 (2.0)	19.6 (2.2)	0.66
Age at RD diagnosis, yrs – mean (SD)	14.9 (4.8)	15.0 (4.7)	0.92
Female – N (%)	110 (68.3)	123 (76.9)	0.09
Race – N (%)			*0.001*
• White	114 (70.8)	81 (50.6)	
• Black	7 (4.3)	22 (13.8)	
• Asian	7 (4.3)	15 (9.4)	
• Other	21 (13.0)	31 (19.4)	
• Patient declined/Unavailable	12 (7.5)	11 (6.9)	
Ethnicity – N (%)			*0.005*
• Hispanic/Latino	30 (18.6)	45 (28.1)	
• Not Hispanic/Latino	121 (75.2)	114 (71.3)	
• Patient refused/Unknown	10 (6.2)	1 (0.6)	
Insurance type – N (%)			*<0.001*
• Medicaid and/or Medicare	22 (13.7)	48 (30.0)	
• Private	134 (83.2)	112 (70.0)	
• Unspecified	5 (3.1)	0 (0)	
Rheumatic disease diagnosis – N (%)			*0.007*
• Inflammatory arthritis	98 (60.9)	87 (54.4)	
• Connective tissue disease	34 (21.1)	60 (37.5)	
• Vasculitis	6 (3.7)	6 (3.8)	
• Chronic recurrent multifocal osteomyelitis	9 (5.6)	1 (0.6)	
• Autoinflammatory disease	4 (2.5)	2 (1.3)	
• Localized scleroderma	6 (3.7)	2 (1.3)	
• Other inflammatory disease	4 (2.5)	2 (1.3)	
Immunosuppressive medication use	95 (59.0)	106 (66.3)	0.26
Influenza vaccination (ever)	97 (60.2)	155 (96.9)	*<0.001*

[1]*A p-value <0.05 was considered statistically significant.*

Conclusions

In a large sample of individuals aged 16-22 with RD, half had not received >/=2 HPV vaccine doses despite increased risk of related adverse health outcomes. As has been shown in the general population, White race, non-Hispanic/Latino ethnicity, and having private insurance were associated with decreased HPV vaccine uptake. Unvaccinated individuals more commonly had IA whereas vaccinated individuals more commonly had CTD. Further research is needed to mitigate barriers to HPV vaccination in this high-risk group.

PO9:99 | Association of systemic rheumatic disease flares with timing of menstruation

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Purpose

How timing of menstruation impacts disease activity or severity among women with systemic rheumatic diseases (SRDs) is poorly understood. We compared demographic, medical, and lifestyle characteristics between women who reported experiencing SRD flares before or during their menses versus women not experiencing disease flares related to their menstrual cycle.

Methods

We enrolled women ages 18-65 who were seen by a Hospital for Special Surgery rheumatologist >/=2 times from 2020-2022 in the Rheumatology Women's Reproductive Health and Wellness Cohort. This analysis includes participants who self-reported SRDs and provided information on SRD flares and menstrual cycles. We conducted descriptive analyses to compare self-reported demographics, lifestyle factors, SRDs, medication use, flare prevalence and severity, and menstrual cycle duration and schedule between women experiencing flares within one week before/during their menses and those not experiencing flares related to menstruation. We excluded women endorsing flares during ovulation or following their menses.

Results

543 participants completed our questionnaire on menstruation; we included 203 who self-reported a SRD and ongoing menstrual periods (mean age 37.3, 146 (71.9%) White, 21 (10.3%) Hispanic or Latina/Latinx). 70(34.5%) women endorsed SRD flares within a week before/during their menses while 133(65.5%) did not experience flares related to menstruation. Women experiencing flares before/during menstruation were older (39.2$\pm$7.9 vs 36.5$\pm$8.4 years, $p<0.03$). SRD diagnoses were comparable between groups; the most common included inflammatory arthritis and systemic lupus erythematosus/lupus-like conditions. Those experiencing flares before/during menses were more likely to use antimalarials within the last year (60% vs 42.1%, $p=0.01$) and were more likely to report a recent flare within the last 3 months (72.9% vs 41.4%, $p<0.01$); however, flare severity (mild, moderate, severe) and variation in menstrual cycle duration and schedule were comparable between groups (Table).

TABLE 1: Demographic, lifestyle, medical and menstrual cycle characteristics in women with or without systemic rheumatic disease flares before/during menses

	Experience flares before and during menses (n = 70)	*Do not experience flares related to menses (n = 133)*	*p-value*
Demographics			
• Age (years), mean (SD)	**39.2 ± 7.9**	**36.5 ± 8.4**	**0.03**
Race			
• White only	46 (65.7)	100 (75.2)	0.25
• Non-white (includes multiracial)	21 (30)	31 (23.3)	
• *Prefer not to answer*	3	2	
Ethnicity			
• Hispanic or Latina/X	7 (10)	14 (10.5)	0.93
• *Prefer not to answer*	1	0	
Age of first menstrual period			
• <10 years old	5 (7.1)	11 (8.3)	1
• 11-15 years old	62 (88.6)	117 (88.0)	0.90
• >16 years old	3 (4.3)	5 (3.8)	1
Lifestyle Factors			
• Currently use alcohol	45 (64.3)	88 (66.2)	0.79
• Currently smoke	0	0	N/A
Medical and Medication History			
Systemic Rheumatic Disease Diagnosis*			
• Inflammatory Arthritis[1]	39 (55.7)	75 (56.4)	0.93
• Lupus and Lupus-like conditions[2]	35 (50.0)	55 (41.4)	0.24
• Vasculitis, myositis, and systemic sclerosis[3]	9 (12.9)	7 (5.3)	0.06
• Other autoinflammatory conditions[4]	6 (8.6)	6 (4.5)	1
• Other SRD reported (not otherwise listed)	3 (4.2)	3 (2.3)	1
Medication use in the past year*			
• Antimalarials[5]	**42 (60.0)**	**56 (42.1)**	**0.01**
• Antiplatelets/Anticoagulants[6]	5 (7.1)	8 (6.0)	0.74
• Biologics[7]	29 (41.4)	66 (49.6)	0.31
• DMARDS/Immunosuppressives[8]	27 (38.6)	48 (36.1)	0.67
• Steroids[9]	21 (30.0)	33 (24.8)	0.39
• JAK inhibitors[10]	6 (8.6)	4 (3.0)	0.09
• Other[11]	14 (20.0)	15 (11.3)	0.08
• None	2 (2.9)	11 (8.3)	0.23
• *Prefer not to answer*	1	0	
• Ever pregnant	30 (42.9)	50 (37.6)	0.47
• *Missing*	9	18	
Most recent flare of SRD			
• Within the last 3 months	**51 (72.9)**	**55 (41.4)**	**<0.01**
• >3 months to >1 year ago	**18 (25.7)**	**63 (47.4)**	**<0.01**
• Do not have disease flares	0	5 (3.8)	0.17
• Do not recall latest disease flare	1 (1.4)	10 (7.5)	0.10
Most recent flare severity			0.99
• Mild	23 (33.3)	39 (33.3)	•
• Moderate	34 (49.3)	57 (48.7)	
• Severe	12 (17.4)	21 (17.9)	
• *Missing*	0	16	

(Continued)

(Continued)

• Currently use prescription birth control**	23 (32.9)	57 (42.9)	0.17
Any Gynecology Diagnosis*	28 (40)	32 (24.1)	0.09
• PCOS	11 (15.7)	15 (11.2)	
• Uterine Fibroids	15 (21.4)	15 (11.2)	
• Endometriosis	9 (12.9)	6 (4.5)	
• *Prefer not to answer*	0	1	
Menstrual Cycle Characteristics			
Duration and schedule of cycle			0.44
• Both are regular	28 (40)	52 (39.1)	
• Regular schedule, varied duration	6 (8.6)	17 (12.8)	
• Regular duration, varied schedule	9 (12.9)	10 (7.5)	
• Both irregular	17 (24.3)	26 (19.5)	
• Natural cycle is impacted by hormonal contraceptive	10 (14.3)	28 (21.1)	

*Self-reported SRD diagnoses, medication use, and gynecology diagnoses are not mutually exclusive
1. Inflammatory Arthritis: Adult Onset Stills Disease, Inflammatory Arthritis (not otherwise specified), Juvenile Idiopathic Arthritis, Psoriatic Arthritis, Rheumatoid Arthritis
2. Lupus and Lupus-like-conditions: Antiphospholipid Syndrome, Lupus, Mixed Connective Tissue Disease, Sjogren's Syndrome, Undifferentiated Connective Tissue Disease
3. Vasculitis, Myositis, and Systemic Sclerosis: Behcets, Myositis, Systemic Sclerosis, Vasculitis
4. Other autoinflammatory conditions: Eye inflammation, gout or pseudogout, IgG-4-related disease, Autoinflammatory Syndrome, Polymyalgia Rheumatica, Sarcoidosis, Other SRD
5. Antimalarials: Hydroxychloroquine, Chloroquine
6. Antiplatelets: Direct oral anticoagulants, Heparin, Warfarin, Antiplatelet medication
7. Biologics: Abatacept, Adalimumab, Anakinra, Anifrolumab, Belimumab, Canakinumab, Certolizumab, Denosumab, Etanercept, Golimumab, Guselkumab, Infliximab, Ixekizumab, Mepolizumab, Rilonacept, Risakizumab, Rituximab, Sarilumab, Secukinumab, Tocilizumab, Ustekinumab
8. DMARDS/immunosuppressives: Azathioprine, Cyclophosphamide, Cyclosporine, Leflunomide, Methotrexate, Mycophenolate, Tacrolimus, Thalidomide, Sulfasalazine, Voclosporin
9. Steroids: Steroid injection, Methylprednisolone, Prednisone
10. JAK inhibitors: Baricitinib, Tofacitinib, Upadicitinib
11.Other medication: Allopurinol, Apremilast, Avacopan, Colchicine, IVIG, Nintedanib, other rheumatology medication not otherwise specific (including chemotherapy)
**Prescription birth control: Nexplanon, IUD, birth control patch, estrogen patch, vaginal ring, DMPA, or Depo-Provera

Conclusions

Our findings suggest that over a third of women with SRDs experience disease flares related to timing of menstruation. Those experiencing flares before/during menses were slightly older, experienced flares more recently, and were more likely to use anti-malarial medications within the prior year. As cohort recruitment is ongoing, future multivariable analyses adjusting for demographic, lifestyle, and medical comorbidities will investigate factors that may influence this potential association.

PO9:100 | Sexual dysfunction in women with systemic lupus erythematosus: A cross-sectional multicentre study

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Citation
Lourenco, M.H., Torres, R.P., Rodrigues-Manica, S., Fraga, V., Abreu, C., Costa, R., Matos, C.O., Mendes, B., Samões, B., Silva, I., Pimentel-Santos, F., Costa, M., Branco, J.C., Sepriano, A. Sexual dysfunction in women with systemic lupus erythematosus: A cross-sectional multicentre study.

Background
Due to its multisystemic involvement, systemic lupus erythematosus (SLE) can have a significant impact on quality of life (QoL). Sexual (dys)function is a key component of QoL but is often underappreciated. Little is known about sexual dysfunction in SLE patients, a condition that primarily affects women during fertile age. We aimed at determining the prevalence of sexual dysfunction among SLE women and predictors thereof.

Methods
We performed a cross-sectional multicentre study in which women (18-70 years-old) with a clinical diagnosis of SLE were included. An anonymous online questionnaire was performed where data on demographics, symptoms of depression and anxiety (HADS), health-related QoL (SF36) and sexual function (Female Sexual Function Index [FSFI] - a 19-item patient-report outcome that assesses female sexual function) were collected. Data on clinical features (disease activity according to the SELENA-SLEDAI, organ involvement and evaluation of comorbidity [Charlson Comorbidity Index]) and on treatment status were collected from medical records. The main outcome was sexual dysfunction, defined as FSFI<26.5 (validated cut-off). A multivariable logistic regression was performed to test the association of clinical and demographic characteristics with sexual dysfunction (present vs absent).

Results

In total, 194 female patients with SLE were included (mean age 44 years-old [SD 11]). The mean SELENA-SLEDAI score was 1.7 (SD 2.2), corresponding

TABLE 1: Descriptive analysis of the population

	Total (n=194)	No sexual dysfunction (n=66; 34%)	Sexual dysfunction (n=128, 66%)	p-value
Age, mean in years (SD)	44.3 (11)	41.3 (10)	45.8 (11.92)	**0,006**
On menopause, n (%)	44 (23%)	9 (5%)	35 (18%)	**0,05**
Disease duration, mean in years (SD)	13.5 (9)	13.5 (9)	13.6 (9)	0,09
Moderate to severe disease activity according to SELENA-SLEDAI, n (%)	42 (22%)	13 (7%)	29 (15%)	0,75
On cDMARDs, n (%)	182 (94%)	65 (34%)	117 (60%)	0,1
On bDMARDs, n (%)	16 (8%)	6 (3%)	10 (5%)	0,98
On glucocorticoids, n (%)	113 (58%)	37 (19%)	76 (39%)	0,77
Charlson comorbidity index, mean (SD)	1.63 (1)	1.44 (1)	1.73 (1)	**0,05**
SF36 Physical, mean (SD)	70.7 (29)	76.5 (29)	67.7 (29)	**< 0,01**
SF36 Mental, mean (SD)	60.8 (22)	69.8 (17)	56.2 (23)	**< 0,01**
HADS Anxiety, mean (SD)	9.4 (2)	8.8 (2)	9.7 (2)	**0,007**
HADS Depression, mean (SD)	9 (2)	8.5 (2)	9.2 (2)	**0,009**

SD, standard deviation; SELENA-SLEDAI, Safety of Estrogens in Lupus Erythematosus National Assessment (SELENA) – systemic lupus erythematosus disease activity index (SLEDAI); cDMARDs, classic disease-modifying anti-rheumatic drugs; bDMARDs, biologic disease-modifying anti-rheumatic drugs

TABLE 2: Multivariable analysis

	Univariable analysis OR (95% CI) (N=192-194)	p-value	Multivariable analysis OR (95% CI) (N=193)
Age	1.04 (1.01; 1.07)	**0.01**	**1.04 (1.01; 1.07)**
Menopause (yes vs no)	2.38 (1.11; 5.61)	0.03	†
SELENA-SLEDAI (remission/LDA vs moderate to severe activity)	1.09 (0.94; 1.28)	**0.24**	**1.18 (1.01; 1.40)**
CCI	1.39 (1.00; 2.02)	0.06	†
bDMARDs (yes vs no)	0.85 (0.30; 2.59)	0.76	*
cDMARDs (yes vs no)	0.16 (0.01; 0.87)	0.09	†
Glucocorticoids (yes vs no)	1.15 (0.63; 2.09)	0.66	*
HADS Depression	1.20 (1.03; 1.42)	**0.02**	**1.20 (1.01; 1.43)**
HADS Anxiety	1.19 (1.04; 1.38)	0.02	†
SF36 Mental	0.97 (0.95; 0.98)	**< 0.01**	**0.97 (0.95; 0.98)**
SF36 Physical	0.99 (0.98;1.00)	0.03	†

* Not selected in the univariable model (p>0.25); † Not selected in the multivariable model (p>0.05); Safety of Estrogens in Lupus Erythematosus National Assessment (SELENA) – systemic lupus erythematosus disease activity index (SLEDAI); CCI, Charlson Comorbidity Index; bDMARDs, biologic disease-modifying anti-rheumatic drugs; cDMARDs, classic disease-modifying anti-rheumatic drugs

to low disease activity, and 94% of patients were on cDMARD's (Tab1). The mean value of HADS was 9 (0-21), for both depression and anxiety scores. Regarding SF36, the mental component had a mean value of 61 (0-100) and the physical one of 70 (0-100). Sexual dysfunction was present in 128 (66%) patients.

In the multivariable analysis (Tab2), older age (OR: 1.04; 95%CI: 1.01; 1.07), higher SELENA-SLEDAI (OR: 1.18; 95%CI: 1.01; 1.40), higher HADS depression score (OR: 1.20; 95%CI: 1.01; 1.43), as well as a lower (that is, worse) SF36 mental component score (OR: 0.97; 95%CI: 0.95; 0.98) were independently associated with sexual dysfunction.

Conclusion

Sexual dysfunction is common in women with SLE and is influenced by both physical and mental health components. Clinicians should consider both for the optimal management of their patients in order to improve their sexual QoL.

PO9:101 | Materno-fetal outcomes of assisted reproductive techniques in systemic autoimmune diseases: A retrospective study in a single tertiary-care center in lombardy region

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Citation
Canti, V., Valsecchi, P., Quaranta, L., De Lorenzo, R., Vanni, V.S., Pasi, F., Papaleo, E., Rovere-Querini, P. Materno-fetal outcomes of assisted reproductive techniques in systemic autoimmune diseases: A retrospective study in a single tertiary-care center in lombardy region.

Purpose

Systemic autoimmune diseases (SADs) often occur in women of childbearing age and may have an impact on fertility. Some conditions such as arthritis present no specific contraindication to assisted reproductive techniques (ARTs). Contrarily, patients suffering from connective tissue diseases (CTD), primarily systemic lupus erythematosus (SLE) and anti-phospholipid antibody syndrome (APS), demand more specialized treatments and targeted management both for ARTs and pregnancy. This study aimed to evaluate the response to ARTs in patients with SADs, both in terms of reactivation of the underlying disease and of ARTs outcome.

Methods

140 ARTs cycles were studied in 77 patients with SADs, referred to the "Polyabortivity Outpatient Clinics" of San Raffaele Hospital, Centro Scienze della Natalità, between February 2009 and February 2023. 127/140 ARTs cycles were performed at our institution and of these, data about ART technique and obstetrical outcome were retrospectively collected.

Results

Distribution of SADs are depicted in Picture 1.

In 52/140(37%) of the stimulations, patients were taking low dose aspirin (LDA) alone, in 6/140(4%) exclusively low molecular weight heparin (LMWH) and in 39/140(28%) of the stimulations LDA+LMWH. In addition, hydroxychloroquine (HCQ) was administered in 48/140 (34%) cases, steroid therapy in 15/140(11%) and immunosuppressive therapy (azathioprine, salazopyrin, anti-TNF) in 12/140(9%). In 4/140 stimulations, data on home therapy were not registered.

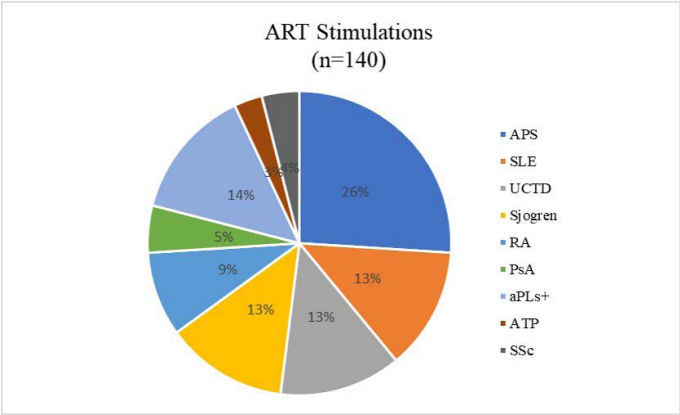


FIGURE 1

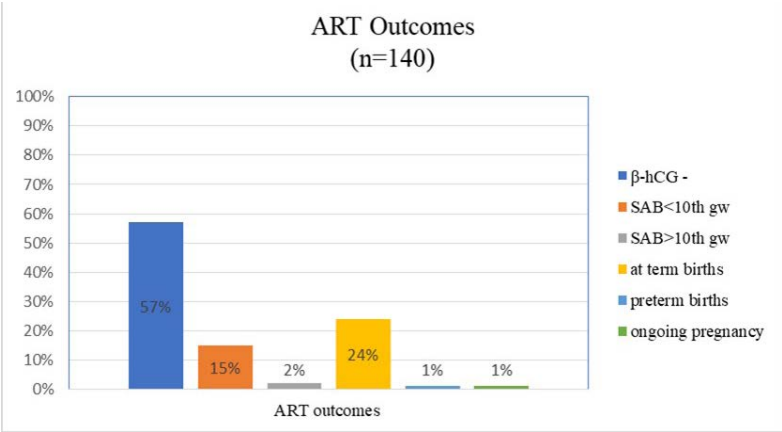


FIGURE 2

Outcomes of ARTs are depicted in Picture 2. The average birth weight was 2921±666g.

In two pregnancies, we observed a reactivation of the underlying autoimmune disease: one patient with PsA manifested a worsening of peripheral arthritis requiring an increase in steroid therapy shortly after delivery, and one with SLE who developed lupus nephritis at conception requiring immunosuppressive therapy.

Conclusions

ARTs did not cause disease flares in 138/140(98%) cycles. In 35/140 (24%) cycles a delivery of a live newborn was performed. Moreover, no significant difference in ARTs outcomes was observed in women with SADs and those without SADs (data from ESHRE report 2021). Our data encourage ARTs in SADs patients, provided good control of the underlying disease beforehand. Future prospective studies on larger cohorts of patients with SADs may provide more precise indications regarding the safety and outcomes of ARTs.

PO9:102 | Factors associated with medication-related concerns in women with inflammatory rheumatic diseases – An analysis of a nationwide pregnancy cohort

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Citation

Meissner, Y., Eickhof, B., Glaser, C., Henes, J., Späthling-Mestekemper, S., Richter, J.G., Specker, C., Fischer-Betz, R., Strangfeld, A. Factors associated with medication-related concerns in women with inflammatory rheumatic diseases – An analysis of a nationwide pregnancy cohort.

Purpose
Pregnancies in women with chronic diseases are often accompanied by concerns about potential complications [1]. This analysis explored medication-related concerns among women with inflammatory rheumatic disease (IRD) and identified influencing factors.

Methods
The German registry Rhekiss is a nationwide, multicentre, web-based cohort study to investigate pregnancies in women with various IRD. Women can participate if they are either planning a pregnancy (cohort 1) or are already pregnant (up to 20 weeks of gestation; cohort 2). Rheumatologist- and patient-reported data are captured at regular, pre-defined follow-up visits.

We analysed data of women who had responded to a question about concerns regarding pregnancy and child's health in relation to medication. Categorical answers and patient characteristics were analysed descriptively. The impact of factors associated with patients' anxieties was estimated by multivariable ordinal logistic regression using the proportional odds model and combining the two cohorts. Missing values were replaced by single imputation.

Results
Between 09/2015 and 10/2022, a total of 2,240 patients were enrolled (cohort 1: 708, cohort 2: 1,532). Out of those, n=455 and n=784, respectively, were eligible for the analysis. On average, women were 32-33 years old and disease duration was 7-11 years (table). A total of 34% in cohort 1 and 25% in cohort 2 stated that they are concerned "a lot" (figure). Responses varied across different IRD diagnoses.

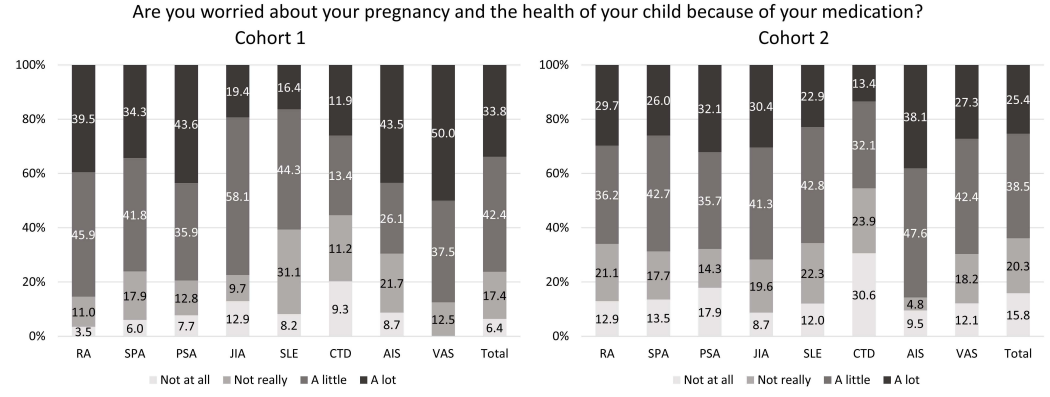
Treatment changes had the greatest impact on higher levels of worries, (odds ratio 1.72 [95% confidence interval 1.38;2.14]). Furthermore, a significant association was found for moderate-severe IRD (1.34 [1.17;1.53]) and a higher disease impact, measured by patient-reported RAID score (per 1-point-increase: 1.31 [1.24;1.38]). Patients who were already pregnant at enrolment

TABLE 1: Characteristics of patients stratified by level of concern.

	Cohort 1				Cohort 2			
Level of concern	Not at all	Not really	A little	A lot	Not at all	Not really	A little	A lot
Number of patients	29 (6.4)	79 (17.4)	193 (42.4)	154 (33.8)	124 (15.8)	159 (20.3)	302 (38.5)	199 (25.4)
Age in years (mean ± SD)	32.3 (4.0)	32.0 (3.8)	32.0 (4.4)	31.9 (4.4)	32.7 (4.2)	32.9 (3.9)	32.7 (4.3)	32.4 (4.3)
Disease duration in years (mean ± SD)	10.6 (9.3)	7.1 (7.0)	8.9 (8.0)	7.1 (7.4)	7.5 (7.0)	7.8 (6.2)	8.2 (7.3)	8.3 (6.9)
Moderate-severe disease	10 (50.0)	33 (49.3)	96 (61.5)	76 (65.5)	33 (31.4)	61 (47.3)	145 (58.7)	110 (65.5)
RAID score* (mean ± SD)	1.3 (1.3)	1.7 (1.6)	2.2 (1.9)	3.0 (2.2)	1.7 (1.7)	1.7 (1.7)	2.2 (1.8)	3.3 (2.3)
Current flare	3 (15.8)	4 (6.7)	15 (10.5)	42 (43.3)	4 (4.3)	4 (3.3)	19 (8.6)	29 (18.7)
Treatment changes**	9 (31.0)	31 (39.2)	112 (58.0)	96 (62.3)	29 (27.4)	47 (36.2)	125 (48.3)	85 (51.2)
Nulligravidity	15 (62.5)	52 (73.2)	111 (66.9)	88 (67.7)	55 (51.9)	65 (53.3)	141 (56.2)	95 (55.9)
Number of comorbidities (mean ± SD)	0.8 (0.9)	0.6 (0.8)	0.7 (1.0)	0.9 (1.0)	0.7 (0.8)	0.8 (0.9)	0.8 (1.0)	0.8 (1.0)

**RAID score: Patient-reported seven-item composite index originally developed for rheumatoid arthritis and now used for all IRD ranging from 0-10.*

***Either due to the plan to become pregnant or the ongoing pregnancy, respectively.*



Abbreviations: AIS, autoinflammatory syndrome; CTD, other connective tissue diseases; JIA, juvenile idiopathic arthritis; PSA, psoritic arthritis; RA, rheumatoid arthritis; SLE, ; SPA, spondyloarthritis; VAS, vasculitis.

FIGURE 1
Level of concerns stratified by cohort and by IRD diagnosis.

were less worried than patients planning a pregnancy (0.63 [0.51; 0.79]). No significant relationship was found for maternal age, number of prior pregnancies and comorbidities.

Conclusions

At least one in four women with IRD is "very concerned" about pregnancy and infant health due to medications. Treatment changes, moderate-severe disease and higher RAID score were associated with higher levels of concern. Therefore, worries should be an essential part of individual counselling for patients who either wish to become pregnant or are already pregnant.

Reference

[1] Lange et al. Z Geburtshilfe Neonatal. 2015; 219(4):161-169.

PO9:103 | The effect of biological treatment on female's fertility: An HMO cohort study of Rheumatiud Arthritis (RA) and Psoricatic Arthritis (PSA) female patients

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Citation

Klement, A.H., Herzberger, E.H., Hornik-Lurie, T., Levy, Y. The effect of biological treatment on female's fertility: An HMO cohort study of Rheumatiud Arthritis (RA) and Psoricatic Arthritis (PSA) female patients.

Introduction

The possible effect of a chronic disease on female's fertility might result from disease itself, pharmacological treatments or psycho-social factors.

Specifically, data regarding reproductive impacts of biological treatments are scarce.

Aim

To study female's fertility in RA patients exposed to biological drugs through an HMO data mining study.

Methods

A retrospective cohort including female patients aged 18-40 at diagnosis: 4517 RA patients were compared to 1415 Psoriatic arthritis (PsA) controls. Exposure medications included: Tumor necrosis factor inhibitors, Anti CD-20 Monoclonal antibodies, Interleukin blockers and T-cell inhibitors. Main outcome measures were pregnancy attempts, positive pregnancy test and fertility treatment utilization.

Results

Age at diagnosis and at initiation of biological treatments was not statistically significant comparing RA to PsA (30.7$\pm$6.3,30.9$\pm$6 and 34.2$\pm$8, 34.2$\pm$7.5 years respectively). In both groups we noticed a rise in performing pregnancy blood tests: post-diagnosis and post treatment initiation. After exposure to biological treatments, significantly more RA patients were attempting pregnancy (37.1% vs. 31.6%, p 0.043). As for achieving conception, before exposure to biological medical treatment more RA patients were successfully pregnant (58.6% vs. 43.3%, p 0.006); However study groups were comparable after exposure (p 0.58). Among RA patients ,exposure to treatment did not affect pregnancy achievement (64.3% vs. 61.6%, p 0.24).

Utilization of fertility drugs and utilization of in vitro fertilization (IVF) treatments were unaffected by exposure to biological medications in both RA and PSA female patients (P 0.64 ,0.18 and P 0.83, 0.57 respectively).

Conclusions

This large cohort provides novel reassuring data regarding spontaneous and medicated fertility in patients exposed to biological medications. Further studies are required, as well as live birth data.

PO10:104 | A case of catastrophic antiphospholipid sydrome during pregnancy in a patient with takayasu arteritis: Successful management of a subsequent pregnancy with certolizumab pegol

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Citation

Moschetti, L., Crisafulli, F., Regola, F., Franceschini, F., Andreoli, L., Zatti, S., Tincani, A. A case of catastrophic antiphospholipid sydrome during pregnancy in a patient with takayasu arteritis: Successful management of a subsequent pregnancy with certolizumab pegol.

Purpose
description of multidisciplinary management that lead to a successful pregnancy in a patient with Takayasu Arteritis(TAK) diagnosis and a CAPS episode during her first pregnancy.

Methods
data collection from the clinical chart.

Results
F.S. is a Caucasian woman diagnosed with TAK in 2008(23years) (Table1). She was treated with high-dose oral GC, anti-hypertensives, and LDA; PTA with stenting of the right renal artery was performed. Disease remission was achieved, GC were reduced to 2.5mg/day. In 2017(32years) she became pregnant; because of aPL positivity (Table1), prophylactic-dose LMWH was added to the treatment. At 11+3GW, due to epigastric pain and laboratory findings consistent with thrombotic microangiopathy (Table1), F.S. was admitted to ICU. An angio-CT-scan excluded signs of active TAK. CAPS diagnosis was made: therapy with GC pulses, continuous IV-heparin and high-dose-IgIV was started with good response. Two weeks later F.S. relapsed and underwent five plasmapheresis sessions. Unfortunately, at 16+3GW an intra-uterine fetal death occurred. In the following weeks, improvement was observed; F.S. was asymptomatic while on treatment with medium-dose oral GC, HCQ, VKA and anti-hypertensives. A 18F-FDG-PET performed some months later was negative for active vasculitis. To reduce oral GC dose and to prevent relapse of TAK, an immunosuppressant was proposed. TNFi demonstrated efficacy in inducing-maintaining remission and a GC sparing effect in TAK patients[1].Considering that F.S. desired a pregnancy and that a pivotal study on Certolizumab-pegol (CTZ) in high-risk APS pregnancies was ongoing[2], CTZ was chosen. It was started in 2018, was well tolerated and allowed GC withdrawal in 2021 without changes in disease activity. In 2022(36years) a second pregnancy started: VKA was replaced with therapeutic-dose LWMH, calcium was added, the ongoing therapy with LDA, CTZ, HCQ, calcifediol, folic acid, clonidine and atenolol was confirmed, according to the plan agreed during preconception counselling, upon by

TABLE 1: Clinical, laboratory and imaging features at Takayasu Arteritis onset and at CAPS development.

F. S., ♀, born in 1985	TAK diagnosis (9/2008)	**CAPS** 11+3 GW **(1/2018)** **IUD** 16+3 GW **(2/2018)**
Symptoms/signs	Headache, left flank colicky pain; BP: 220/130 mmHg	Intense epigastric pain; BP: 130/85 mmHg
Laboratory tests	*Blood tests:* Hb 10.8 g/dL; PLTs 262000/mmc; sCr 1.25 mg/dL (eGFR 70 mL/min); CRP 89 mg/L; haptoglobin 260 mg/dL; schistocytes absent *Immunologic tests:* ANA, anti-ENA, anti-dsDNA, anti-GBM, ANCA, cryoglobulin, aCL, aβ2GPI: neg; C3, C4, CH50: normal; LAC+; direct Coombs+ (IgG+, C3D++) *Urinalysis: urine sediment*: albumin 40 mg/dL; GR <3 cells/HPF; *24-hour proteinuria*: 370 mg	*Blood tests:* Hb 9 → 7.3 g/dL; PLTs 123000 → 73000/mmc; sCr 0.7 mg/dL; CRP 170 mg/L; D-dimer 807 → 3642 ng/mL; uric acid 3 mg/dL; haptoglobin 223 mg/dL; schistocytes present; GOT 64 U/L; GPT 112 U/L *Immunologic tests:* aCL IgM+, aCL IgG-, aβ2GPI IgG+, aβ2GPI IgM-, LAC+, direct Coombs+ (IgG+++, C3D++) *Urinalysis: urine sediment*: albumin 20 mg/dL; GR <3 cells/HPF; *24-hour proteinuria*: 408 mg
Imaging/specialistic/ histologic studies	*Abdominal aorta angio-MRI*: serrated ostium stenosis of right renal artery, homogeneous perfusion of the kidney, left renal artery not visible, marked impairment of renal perfusion with avascular areas in the third lower middle; the other vessels originating from the abdominal aorta are normal. *Thoracic aorta and TSA angio-MRI*: hypoplastic right vertebral artery *Brain MRI*: hypertensive encephalopathy, vasogenic edema (PRES) *Echocardiography*: normal findings *Fundus oculi evaluation*: hypertensive retinopathy grade 3-4 (small hemorrhages, cottony exudates)	*Thoracic/abdominal angio-CT:* some focal hypodense irregularities of the posterior wall of the aorta in the juxtarenal site (focal thrombotic appositions). Presence of a post-ostial vascular stent in the right renal artery. Occluded left renal artery (wrinkled left kidney). Other vessels normal. *ECD TSA*: vertebral arteries normal (left dominant); no flow alterations of the subclavian and axillary arteries. *Placental histology*: area of extensive, recent, full-thickness infarction; villi with changes from chronic hypoxia with syncytial notches. Placental weight (40.8 g) below the lower limit of the 95% CI of the corresponding gestational age (108.5 g).

the multidisciplinary team (rheumatologist, nephrologist, gynecologist).F.S. was closely monitored every month, was asymptomatic, laboratory tests remained normal during all the pregnancy. At 37+0GW a PROM occurred, and a healthy male baby(2.300Kg) was born by vaginal delivery.

Conclusions

This case-report highlights the importance of multidisciplinary management of high-risk pregnancies in women with systemic autoimmune diseases. It additionally supports the use of TNFi, with potential beneficial effects by restoring angiogenic balance and normalizing placental vascularization, in the setting of obstetric APS2.

References

[1] Novikov PI. Rheumatology. 2018

[2] https://clinicaltrials.gov/ct2/show/NCT03152058

PO10:105 | Follow-up of newborns of women with rheumatic diseases in a third-level hospital in mexico

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Citation
De La Garza, S.G.R., Treviño, A.V.V., Rodríguez, F.G., Pérez, N.E.R., Taylor, C.M.S., Barbosa, L.P. Follow-up of newborns of women with rheumatic diseases in a third-level hospital in mexico.

Purpose

Perform an analysis on the baseline demographic characteristics of the population of children born to women with rheumatic diseases at a third-level hospital in north-eastern Mexico.

Methods

Descriptive and longitudinal study. A cohort of patients consisting of children of mothers with rheumatic diseases was integrated, with follow-up from birth to 18 months of age, who are part of a pregnancy clinic for women with rheumatic diseases at a third-level hospital in north-eastern Mexico. The baseline characteristics of the patients and their children were evaluated, as well as clinical characteristics, treatment, perinatal complications, and developmental follow-up.

Results

A total of 81 pregnant patients who met the inclusion criteria were attended to between 2018 and 2023. However, 15 patients chose to give birth at institutions other than ours, so they were excluded from the study. Of the remaining 66 mothers, the most common diagnoses were: Rheumatoid Arthritis (53.03%), Systemic Lupus Erythematosus (21.21%), and Antiphospholipid Syndrome (16.6%). Of these pregnant women, 8 experienced pregnancy loss before 21 weeks of gestation.

Fifty-eight live new-borns were evaluated, of which 30 were female (51.72%) and 28 were male (48.27%). The most common method of delivery was by cesarean section, with 53.44%, and 46.55% by vaginal delivery. Ten patients were classified as having low birth weight, 1 with very low birth weight, and 1 with extremely low birth weight. The average weight was 2,730g (930-3,870g). The average height was 47cm (34-52cm), and the average head circumference was 32.7cm (24-37cm). Ten patients were born prematurely: 7 late preterm, 1 moderate preterm, and 2 extremely preterm. Six babies died in the neonatal period: 1 due to complications secondary to heart block (with a history of mother with SLE) and 5 due to prematurity complicated with early neonatal sepsis.

Conclusion

The results presented, although partial, should continue in order to thoroughly understand the risk factors and their consequences during growth. Women with rheumatic diseases should be approached throughout pregnancy by a multidisciplinary team. (1) Follow-up by specialists of new-borns after birth should be focused on treating comorbidities and planning long-term follow-up for growth and development.

PO10:106 | Postnatal health of infants born to mothers with autoimmune diseases when treated with hydroxychloroquine

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Citation

Matys, V., Garufi, C., Rizzo, F., Piccioni, M.G., De Carolis, M.P., Barresi, S., Serio, A.M., Lanzone, A., De Carolis, S. Postnatal health of infants born to mothers with autoimmune diseases when treated with hydroxychloroquine.

Purpose
The purpose of this retrospective observational cohort study was to observe the postnatal health in infants born to mothers with autoimmune diseases treated with hydroxychloroquine during pregnancy, compared with those who did not receive hydroxychloroquine.

Methods
313 pregnancies of patients who suffered from different systemic autoimmune diseases were considered; pregnancy data were collected and then a telephone follow-up on 182 infants conducted by questionnaire was performed to detect the long-term pediatric outcome. The first group consisted of women who took hydroxychloroquine during pregnancy (HCQ group) and the second one of women who did not (non-HCQ group). Results with $p < 0.05$ were considered statistically significant.

Results
In the HCQ group there was a higher prevalence of women with multiple associated maternal diseases rather than one single autoimmune disease ($p=0.0015$). Therefore, the HCQ group consisted of higher risk pregnancies, but the obstetrical and neonatal outcomes were found to be similar in the two groups. Regarding the postnatal health, infants of the non-HCQ group showed an overall higher prevalence of diseases, but the difference was not statistically significant. While clustering the children into three groups, distinguishing those with no pathologies from those with 1, 2, or equal or more to 3 pathologies, 40% of the children in the HCQ group turned out not to have pathologies versus 25% of the children in the non-HCQ group: this difference resulted statistically significant with a p-value of 0.037.

Conclusions
Regarding pregnancy outcome, we observed a good rate of live births, with a low occurrence of fetal loss. The similar neonatal outcome at birth between the two groups is a factor that supports the use of hydroxychloroquine. In fact, HCQ group patients had a higher number of

associated medical diseases, so a less favorable pregnancy outcome was expected. Particularly, we would like to highlight that infants' follow-up in HCQ group was disease-free in a higher rate than that in non-HCQ group. This protective role of HCQ on infant health adds an intriguing favorable observation, beyond the well-known positive role that HCQ exposure plays in the reduction of risk for neonatal lupus and Congenital Heart Block.

PO10:107 | Axial spondylarthritis and fertility in men: A cross sectional analysis

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Citation

Lourenco, M.H., Gago, L., Silva, A.B., Santos, M., Torres, R.P., Branco, J.C., Costa, M. Axial spondylarthritis and fertility in men: A cross sectional analysis.

Purpose

Axial spondylarthritis (axSpA) affects the quality of life (QoL) and a higher frequency of sexual dysfunction in men seems to exist, although studies are scarce.1,2 We aimed to explore the fertility in axSpA men and the patient-centered impact of the disease in both fertility and sexuality.

Methods

Patients > 18 years-old, with a clinical diagnosis of axSpA, were invited to fulfill a questionnaire with demographic variables, clinical, sexual and fertility-related questions. A descriptive analysis was performed, with appropriate statistics.

Results

A total of 227 men were recruited (mean age 47,4 [12,6] years-old). Symptoms began at around 23,6 years-old (7,8 years of diagnosis delay). 95% of men were ever exposed to NSAID's, and 23% to cDMARD's.

Most men (94%) had an active sexual life; half had at least a once-weekly sexual practice. About 26% stated interference of the disease with sexual activity, with 20% reporting dissatisfaction.

Regarding physical limitations, 11% (n=25) of patients needed walking assistant devices and 13% (n=27) had a hip prothesis. Within this population (n=42), 17% reported no sexual activity and slightly more than half claimed an interference of the disease with the quality of sexual life.

In total, 176 patients (78%) had children. Around half of these had a moderate to severe activity of the disease; this percentage was similar in men without children. Among these (n=51), 61% had the desire to have children. The main reasons for not being parents were fear of disease progression or transmission and medication effects to the baby.

TABLE 1: Descriptive analysis of patients with axial spondylarthritis with and without children

	No children (n=51)	With children (n=176)	p-value
Age, mean in years (SD)	37,6 (13)	50,6 (10) [MD 1]	**< 0.00001**
Disease duration, mean in years (SD)	20,4 (14)	25,3 (11) [MD 26]	**0.006034**
Moderate to severe disease activity according to ASDAS, n (%)	28 (55%)	99 (56%) [MD 3]	0.768533
Past or present cDMARDs, n (%)	14 (27%)	39 (22%) [MD 1]	9.443612
Past or present bDMARDs, n (%)	1 (2%)	1 (1%) [MD 1]	0.351207
Past or present NSAIDs, n (%)	48 (94%)	168 (95%) [MD 1]	0.565144
HLA-B27 positivity (n)	20 (39%) +	62 (35%) [MD 105]	0.649129

Missing data – MD

There were no significant differences between men with and without children concerning disease severity, medication or HLA-B27 status (table 1). The disease duration was statistically different between the two groups (25,3[11] vs 20,4[14] years, respectively); a multivariate analysis was not performed due to high number of missing data [n=40]).

Conclusions

Our study showed that sexual life was affected by the disease, causing dissatisfaction in almost one quarter of men. Regarding parenthood, there were no major differences between men with and without children, although missing data is not negligible. Larger studies are needed as sexual life and fertility are key factors in QoL.

PO10:108 | Fertility and sexuality in men with systemic lupus erythematosus

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Citation

Lourenco, M.H., Gago, L., Silva, A.B., Santos, M., Torres, R.P., Branco, J.C., Costa, M. Fertility and sexuality in men with systemic lupus erythematosus.

Purpose

Systemic lupus erythematosus (SLE) affects reproductive health, but male fertility in SLE remains under studied. Men with SLE men seem to have a higher prevalence of erectile dysfunction and a lower number of children compared with healthy. 1,2 The aim of this project was to assess the fertility and sexual health in men with SLE.

Methods

Patients > 18 years-old, with a clinical diagnosis of SLE, were invited to fulfill a questionnaire with demographic variables, clinical, sexual and fertility-related questions. A descriptive analysis was performed, with appropriate statistics.

Results

A total of 28 patients were included (mean age 40,8 [11,5] years-old). Symptoms began around 29,3 years-old with a mean diagnosis age of 40,9 (11,4). The disease was in remission or with low activity in 82% of the population. Regarding medication, 68% (n=19) of men were under prednisolone, 36% (n=10) under hydroxychloroquine and 18% (n=5) not taking any drug. One patient was currently under cyclophosphamide (CYC) (moderate activity) and 3 patients have done that drug in the past (remission/low-activity disease).

Concerning fatherhood, 71% of patients had at least one child, having been a father for the first time around 26,5 years-old (4,1). Two of the patients that have ever undergone CYC had children; for the two remaining, one did not want children and the other claimed that desire in the future.

Regarding sexuality, 86% (n=24) had active sexual life; 36% reporting at least a once-weekly sexual practice. Among total patients, 25 answered the question about sexual satisfaction, with the majority (64%; n=16) being satisfied.

TABLE 1: Descriptive analysis of patients with systemic lupus erythematosus with and without children

	No children (n=8)	With children (n=20)	p-value
Age, mean in years (SD)	28 (8)	45,6 (8)	**< 0.00001**
Disease duration, mean in years (SD)	8,6 (5) *	12,9 (8) *	0.093309
Mild to severe disease activity according to SELENA-SLEDAI, n (%)	2 (25%)	11 (55%) *	0.118277
Past or present cDMARDs, n (%)	7 (88%)	13 (65%)	0.233815
Past or present bDMARDs, n (%)	2 (25%)	2 (10%)	0.305507
Past or present glucocorticoids, n (%)	6 (75%)	16 (80%)	0.770831

* One (1) missing data

A descriptive analysis between men with and without children showed no significant differences regarding disease duration, severity or medication (table 1).

Conclusions

This study did not show major differences between men with and without children in SLE, although attention should be drawn to the small sample size and the missing data. Most of SLE patients had a low activity/remission of the disease, which may justify the absence of differences. Sexual life was not affected in our patients. More studies with larger samples are needed, as fertility and sexuality are key factors in the quality of life.

PO10:109 | Paternal effects of anti-TNFs in inflammatory arthritis

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Citation
Dinçer, Z.T., Ates, M., Dag, A., Turkoglu, I., Ugurlu, S. Paternal effects of anti-TNFs in inflammatory arthritis.

Purpose

Inflamatuar arthritis oversees a group of protean rheumatic diseases characterized by the inflammation of joints in addition to systemic manifestations. The most ubiquitous types of inflammatory arthritis are psoriatic arthritis (PsA), rheumatoid arthritis (RA), and spondyloarthritis (SpA). In the treatment of these conditions, the use of Anti-TNFs has become very frequent, especially after the 2000s. The efficacy of the Anti-TNF drugs is well known in inflamatuar arthritis. However, their effects on fertilization in pregnant women and men remain mostly obscure, and related documentation is very restricted. In this study, we aimed to determine the effect on fertilization of men who take anti-TNF treatment.

Methods
We performed a questionnaire to the patients who were diagnosed between 1987-2020. We performed a cross-sectional study. We asked them questions about their fertility.

Results
The 102 patients were involved in our questionnaire. The mean age of the patients was 54. 80%of the total patients(82patients) had the diagnosis of ankylosing spondylitis, while 12%(12patients) had the diagnosis of psoriatic arthritis, which was subsequently followed by rheumatoid arthritis in 8patients. Among the 102patients, 72patients did not get pregnant from which 94%(68patients) were exercising contraception. 4patients could not get pregnant despite trying to conceive while following anti-TNF treatments using infliximab, etanercept, golimumab, and adalimumab. These 4patients were screened for infertility, revealing unknown etiology for 3, and revealing women-originated problems in the remaining patient. Interestingly 2 out of these 4patients had already conceived and given birth before anti-TNF treatment. The number of patients who conceived was 30, of which the total gestation count was 49. Three of them conceived through ARTs. 24 of the patients had no birth complication history throughout their whole pregnancies. Among the other 6patients, 2 of them who were using etanercept and certolizumab pegol, respectively, had intrauterine ex history. Additionally, of those 6patients, all patients using 1certolizumab pegol, 1golimumab, 3etanercept, and 1infliximab had experienced at least 1 miscarriage.

Conclusions
Among the male patients who took anti-TNF treatment (80%), there were no problems during the partner's pregnancy which could be linked to a paternal origin. Anti-TNF treatment thus seems to be safe in regards to fertilization in male patients

PO10:110 | Novel use of interleukin-1 antagonists in male FMF patients with infertility

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Citation
Ugurlu, S., Egeli, B., Parlar, K., Filiz, B. Novel use of interleukin-1 antagonists in male FMF patients with infertility.

Background

Male infertility is one of the rare complications of FMF however the relationship between FMF and male infertility is not exactly clear. The information available about pathogenesis of male infertility in FMF patients is quite limited. Two com-monly described reasons in the literature for male infertility in FMF patients are development of testicular amyloidosis which is a very rare complication of FMF and long-term colchicine use.

Objectives/Methods

Here we report two cases of male FMF patients with transient infertility, both patients conceived healthy embryos via in vitro fertilization after stopping colchicine and starting anti IL-1 agents.

Results

Both of our patients managed to have children via IVF procedures after switching from colchicine to anti IL-1 agents. One patient (case 1) had an increase in sperm volume, concentration, total number, and motility. The other patient (case 2) had an increase in sperm motility after switching to anti IL-1 therapy. First patient had a successful IVF attempt 4 months after starting to use anti IL-1 agents. Using these agents both allows us to discontinue colchicine and results in better disease control in colchicine resistant patients.

Conclusions

Anti IL-1 agents have the potential to be the preferred treatment method in male FMF patients experiencing reproductive disturbances due to colchicine or local inflammation in the testicles.

PO10:111 | Semen analysis of patients with psoriatic arthritis, axial spondyloarthritis and healthy controls

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Citation

Meridor, K., Barda, S., Elalouf, O., Furer, V., Pel, S., Nochomovitz, H., Paran, D., Hauser, R., Elkayam, O., Polachek, A. Semen analysis of patients with psoriatic arthritis, axial spondyloarthritis and healthy controls.

Purpose

To evaluate the sperm quality in male patients with PsA and AxSpA compared to healthy controls (HC) and investigate effects of disease activity and antirheumatic drugs on sperm quality.

Methods

Consecutive PsA and AxSpA patients (age range 18-50 years), who fulfilled the classification criteria for PsA (CASPAR) and AxSpA (ASAS) were recruited prospectively. HC were recruited from sperm donors at the male fertility clinic. Each patient was evaluated by a comprehensive clinical assessment that included measurement of disease activity scores (MDA/DAPSA/CPDAI/PASDAS for PsA and ASDAS for AxSpA). Treatments ranged from no treatment to conventional and biologic DMARDs. Sperm collection and analysis were performed on the day of clinical assessment. Sperm analysis was performed according to the World Health Organization 2010 guidelines. In addition, sperm DNA-fragmentation test was performed.

Continuous variables were compared using a t-test or Anova for normally distributed data, otherwise a non-parametric test was applied.

Results

63 patients (38 PsA and 25 AxSpA) and 50 HC were included. Demographics, clinical characteristics, and semen analysis are presented in Table 1. Semen parameters, including concentration, motility and vitality of PsA and AxSpA patients were similar to those of HC ($p>0.05$). The only statistically significant difference was a mildly lower proportion of normal morphology in both PsA and AxSpA compared to HC (3.13 ± 1.47 vs 4.64 ± 2.00 and 2.96 ± 1.34 vs 4.64 ± 2.00 respectively, $p<0.05$). In addition, the different states of disease activity (remission/low and moderate/high disease activity) for PsA did not show significant differences in semen analysis ($p>0.05$), while for AxSpA, DNA-fragments were the only parameter that was mildly elevated in the higher vs lower ASDAS scores (13.33 ± 4.74 vs 9.33 ± 3.89, $p=0.03$). Finally, a comparison of the different treatment options (no treatment, conventional and biologic DMARDs) for PsA, did not show differences, while for AxSpA,

TABLE 1: Demographic, clinical characteristics, and comparison of semen analysis between PsA and AxSpA patients to healthy controls

	PsA n=38	AxSpA n=25	HC n=50
Demographics			
• Age, mean (± s.d)	37.82 (± 7.35)#	35.44 (± 6.39)#	31.68 (± 1.04)#
• BMI, mean (± s.d)	25.66 (4.43)	23.76 (2.83)	-
• Smoking (Tobacco), n (%)	5 (13)	8 (32)	-
• Education, University, n (%)	24 (63)	16 (64)	-
• Employment, employed, n (%)	37 (97)	22 (88)	-
• Married/in relationship n (%)	23 (60)#	11 (44)#	-
• No. of children, mean (± s.d)	0.92 (± 1.22)	0.56 (± 0.87)	-
• No. of spontaneous abortions, mean (± s.d)	0.05 (± 0.23)	0.16 (± 0.37)	-
Psoriasis duration, mean (± s.d)	12.38 (± 8.97)	-	-
Disease duration (PsA/AxSpA), mean (± s.d)	5.81 (± 5.69)	7.44 (± 6.84)	-
Treatment, n (%)			-
• None	13 (34)	12 (48)	
• CsDMARDs*	3 (8)	-	
• CsDMARDs+TNFi**	4 (10)	-	
• TNFi**	9 (24)	11 (44)	
• Anti-IL17**	6 (16)	2 (8)	
• Anti-IL12/23 or anti-IL23**	3 (8)	-	
Disease activity scores			-
• MDA, n (%)	24 (63)	-	
• DAPSA, mean (± s.d)	13.04 (± 13.41)	-	
• CPDAI, mean (± s.d)	4.63 (± 2.97)	-	
• PASDAS, mean (± s.d)	2.97 (± 2.04)	-	
• ASDAS, mean (± s.d)	-	2.33 (± 1.22)	
CRP (mg/L), mean (± s.d)	4.58 (± 5.38)	5.00 (± 8.97)	-
Semen analysis* **			
Normal viscosity, n (%)	19 (50)	13 (52)	22 (44)
PH, mean (± s.d)	8.12 (± 0.34)	8.11 (± 0.24)	8.17 (± 0.33)
Volume (ml), mean (± s.d)	2.66 (± 1.09)	2.97 (± 1.42)	2.78 (± 1.46)
Concentration (million/ml), mean (± s.d)	55.70 (± 29.13)	48.60 (± 33.35)	52.10 (± 33.39)
Motility, mean (± s.d)	56.87 (± 11.81)	54.61 (± 15.65)	59.54 (± 14.31)
Vitality, mean (± s.d)	81.05 (± 7.07)	81.48 (± 9.43)	82.35 (± 7.48)
Normal morphology, mean (± s.d)	3.13 (± 1.47)#	2.96 (± 1.34)#	4.64 (± 2.00)#
Total DNA fragments, mean (± s.d)	12.99 (± 7.47)	11.64 (± 4.86)	-

* csDMARDs= Methotrexate, Leflunomide

** Biologic= TNFi (Infliximab+Etanercept+Adalimumab+ Golimumab), Anti-IL17 (Secukinumab+Ixekizumab), Anti-IL23 (Guselkumab), Anti-IL12/23 (Ustekinumab)

*** Normal values of semen analysis (WHO 2010): PH>7.2, Volume>1.5 ml, Concentration>15 million/ml, Motility>40%, Vitality>58%, Normal Morphology>4%, DNA fragmentation<30%.

P-Value<0.05 (vs healthy controls)

motility was significantly lower in the biologic group compared to no treatment (50.62±12.13 vs 58.93±18.29, p=0.01).

Conclusions

This study demonstrates that semen quality of PsA and AxSpA patients was comparable to HC in most parameters. In addition, neither disease activity nor antirheumatic drugs affected sperm quality in PsA, while in AxSpA minor differences were observed.

PO10:112 | Reproductive health issues in patients with immune-mediated rheumatic diseases: Differences between men and women

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Citation

Giacobbe, E., Gerardi, M.C., Gagliardi, C., Ughi, N., Benedetti, S., Di Raimondo, G., Ascione, A., Barichello, M., Epis, O.M. Reproductive health issues in patients with immune-mediated rheumatic diseases: Differences between men and women.

Purpose

To assess the different perception of sexuality, fertility, contraception, impact of drugs used during pregnancy/lactation and the importance of transmissibility to children between female and male rheumatological patients. It was investigated whether these aspects were addressed by physicians (rheumatologists, obstetricians, andrologists, general practitioners or other specialists).

Methods

An observational study was conducted. In January2023 a Reproductive Health Counselling Clinic was created. A survey about reproductive health (sexuality, contraception, fertility, pregnancy and lactation) in relation to the rheumatic disease has been submitted to patients with immune-mediated diseases aged 18to 50years. One question investigated their need for information about aspects of reproductive health as part of a counselling carried out by dedicated rheumatologists. In this study differences between men and women were analysed.

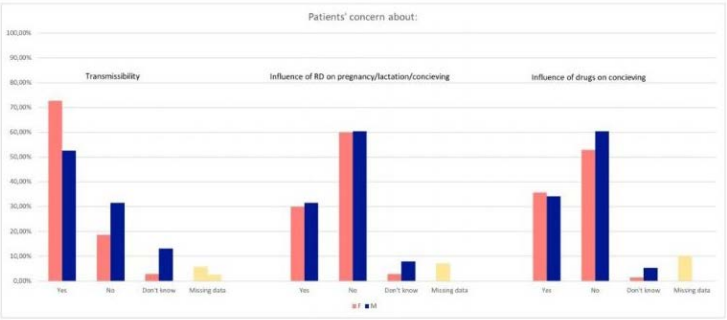
Results

From January to March 2023, 108patients (70 females,38 males) completed the survey. The demographic and clinical characteristics of the population are shown in Tab1. Patients were asked whether their disease influences sexuality: no difference between men and women was observed. 56.5%of patients affirmed not to use condoms, without statistical difference between sexes. No differences were observed between males and females regarding concern about transmissibility, influence of the rheumatic disease and the drugs taken for it on reproductive health (Fig 1-2). 71patients (65.7%) were worried about the transmissibility of their disease: females were more worried than males ($p < 0.05$). 43patients (39.8%) had never explored these aspects with any physician: contraception was addressed in 15cases (13.9%), aspects concerning drugs, fertility and transmissibility to children were handled in 23(21.3%), 21(19.4%), 22(20.4%) cases respectively, with no statistical difference between men and women. Only 16(22.9%) of women explored aspects of pregnancy and lactation in relation to their disease

TABLE 1: Demographic and clinical differences between men and women

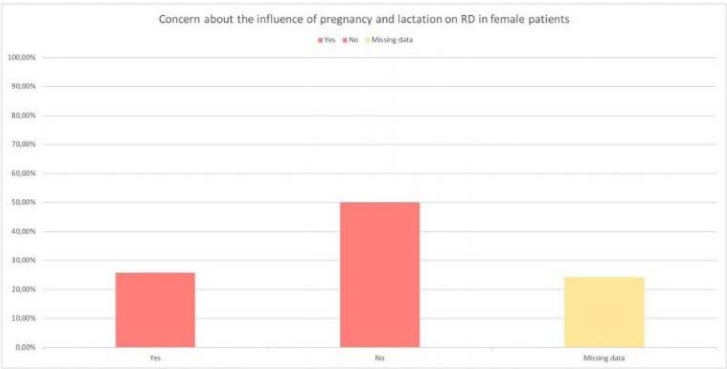
	Female (n 70)	Male (n 38)	*p* value
Age, *years*, mean [min, max]	41.2 [25, 50]	40.0 [22, 50]	0.15
Ethnicity, n (%)			
African	3 (4.3)	2 (5.3)	
Asian	1 (1.4)	0 (0.0)	
Centre/south American	9 (12.9)	1 (2.6)	
European	53 (75.7)	34 (89.5)	
North American	1 (1,4)	0 (0.0)	
Missing data	3 (4.3)	1 (2.6)	
Diagnosis, n (%)			
RA	34 (48.6)	6 (15.8)	
JIA	0 (0.0)	1 (2.6)	
PsA	7 (10.0)	10 (26.3)	
SpA	6 (8.6)	12 (31.6)	
SLE	11 (15.8)	0 (0.0)	
UCTD	2 (2.9)	0 (0.0)	
SS	0 (0.0)	1 (2.6)	
Vasc	7 (10.0)	5 (13.2)	
Other	2 (2.9)	3 (7.9)	
Missing data	1 (1.4)	0 (0.0)	
Disease duration, years, median [IQR]	10.0 [4;14]	7.0 [3,5;12,5]	0.484
Treatment, n (%)			
HCQ	18 (25.7)	1 (2.6)	
OCS	22 (31.4)	5 (13.2)	
MTX	14 (20.0)	4 (10.5)	
MMF	3 (4.3)	1 (2.6)	
THAL	1 (1.4)	0 (0.0)	
CsA	0 (0.0)	1 (2.6)	
ETA	6 (8.6)	0 (0.0)	
ADA	6 (8.6)	16 (42.1)	
CTZ	4 (5.7)	0 (0.0)	
GOL	6 (8.6)	0 (0.0)	
INF	1 (1.4)	0 (0.0)	
SEK	1 (1.4)	6 (15.8)	
RTX	2 (2.9)	3 (7.9)	
TOFA	2 (2.9)	3 (7.9)	
UPA	1 (1.4)	0 (0.0)	
FILGO	2 (2.9)	0 (0.0)	
BELI	3 (4.3)	1 (2.69)	
TOCI	4 (5.7)	0 (0.0)	
SARI	0 (0.0)	2 (5.3)	
Missing data	2 (2.9)	0 (0.0)	
	0 (0.0)	5 (13.2)	

Legend: ABA, abatacept; ADA, adalimumab; BELI, belimumab; CTZ, certolizumab; CsA, ciclosporin; ETA, etnercept; FILGO, filgotinib; GOL, golimumab; HCQ, hydroxycloroquine; INF, infliximab; JIA, juvenile idiopathic arthritis; MTX, methotrexate; MMF, mycofenolate mofetil; OCS, oral corticosteroids; PsA, psoriatic arthritis; RA, rheumatoid arthritis; RTX, rituximab; SARI, sarilumab; SEK, sekukinumab; SLE, systemic lupus erythematosus; SpA, spondyloarthritis; SS, Sjögren syndrome; THAL, thalidomide; TOCI, tocilizumab; TOFA, tofacitinib; UCTD, undifferentiated connective tissue disease; UPA, upadacitinib; Vasc, vasculitis.



Legend: F, females; M, males; RD, rheumatological disease.

FIGURE 1
Patients' concern about transmissibility, influence of RD on pregnancy, lactation or conceiving, influences of drugs used for rheumatological disease on conceiving: differences between men and women.



Legend: RD, rheumatological disease.

FIGURE 2
Women concern on the effect of pregnancy and lactation on their disease control.

with a physician. 49 patients explored aspects of reproductive health with a rheumatologist, 8 with their general practitioner, 8women with their gynaecologist and 1man with a urologist. 75% still want to explore these aspects. 29 patients (26.9%) agreed to the counseling option: 11 men, 19 women.

Conclusion

Although there is growing attention to reproductive health, there is still a lot of ground to cover to address the patients with a more wholly approach, without overlooking sexuality, contraception, fertility and transmissibility of the disease both in women and men.

PO10:113 | The different viewpoints regarding the discussion of reproductive and sexual health: The rheumatologists perspective

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Citation

Perez, L.F., Röder, E., Pedraza, I.C., Navarro, A.C.L., Navarro, J.A.F., Aguirre, T.V., van Exel, J., Guerrero, A.V., Dolhain, R. The different viewpoints regarding the discussion of reproductive and sexual health: The rheumatologists perspective.

Purpose
Inflammatory arthritis (IA) has been associated with various problems related to male sexual and reproductive health (SRH). The purpose of this study was to describe the viewpoints on the aspects influencing the discussion of SRH amongst rheumatologists.

Methods
Rheumatologists working the Netherlands and Mexico were invited. This study is based on the Q methodology. Participants rated on a scale 32 factors according to the degree of influence (least-most influence) in addressing SRH with their patients. A factor analysis per participant identified common patterns in the ratings. These patterns represent the different viewpoints. Interview data, were used to further interpret the viewpoints.

Results
60 rheumatologists were included in the study. Almost universally, the most important aspects for rheumatologist to approach the topic of SRH with their male patients were an active desire to have children from their patients and a negative side effect of medication on fertility. The analyses revealed 3 viewpoints.

1. The "holistic" rheumatologist. They value SRH as an important contributor to the quality of life of their patients. They take SRH into consideration during the decision-making-process. If their patients have a partner or if the patients are diagnosed with comorbidities, they are more likely to approach the topic. They don't expect patients to start the conversation.

2. The "reactive" rheumatologist. They are more likely to talk about this topic if their patients already have a SRH problem or if the patients are the ones willing to start the conversation. These rheumatologists are more likely to feel uncomfortable when discussing SRH with their male patients.

3. The "treat-the-joints" rheumatologist. There was clearly one aspect that dictate if they approach SRH with their male patients; the degree of disease activity. Limited time during the consultation and prioritizing other topics above SRH result in SRH being not often approached with their patients; "the patient wants me to treat their disease, the rest is less important".

Conclusion

We identified 3 viewpoints. In one of these views (holistic) addressing this issue is relatively easy and is considered important. However, for rheumatologists identified with the two other points of view (reactive and treat-the-joints) this topic is difficult, uncomfortable or considered as not relevant.

PO11:116 | Maternal and fetal outcomes in primary systemic vasculitis: A monocentric cohort study of 19 patients and 26 pregnancies

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Citation
Beça, S., Alba, M.A., Prieto-González, S., Espígol-Frigolé, G., Hernández-Rodríguez, J., Cid, M.C., Baños, N., Espinosa, G. Maternal and fetal outcomes in primary systemic vasculitis: A monocentric cohort study of 19 patients and 26 pregnancies.

Purpose
Pregnancy in women with primary systemic vasculitis can impact the control of the disease. The vasculitis activity or its organ damage may also influence maternal and fetal outcomes. The objective of this study was to analyze the pregnancy outcome of patients with diverse types of primary systemic vasculitis followed in a third-level referral center in Spain.

Methods
Retrospective cohort study of all pregnant patients with systemic vasculitis followed between 2012 and 2022 at the High-Risk Pregnancy Clinic of the Department of Systemic Autoimmune Diseases.

Results
Nineteen women with primary systemic vasculitis were identified, with a total of 26 pregnancies. Behçet disease and ANCA-associated vasculitis were the most frequent type of vasculitis. All women had the diagnosis of vasculitis before pregnancy, with a median time between the diagnosis and pregnancy of 5.9 years. In most cases (73.1%), the disease was in remission at conception, 63.2% of which were under immunosuppressive treatment. Four women experienced vasculitis flares during pregnancy, all during the second trimester (one each with Takayasu arteritis, eosinophilic granulomatosis with polyangiitis, IgA vasculitis, and Behçet disease). Four additional women (18.2%) presented with post-partum relapses (one each with eosinophilic granulomatosis with polyangiitis, granulomatosis with polyangiitis, IgA vasculitis, and Behçet disease). Around 85% (22 of 26) of pregnancies resulted in live babies. In the remaining four cases, medical termination of pregnancy was considered because of potential complications of active vasculitis or teratogenic effects of medication. There were no spontaneous miscarriages, stillbirths, maternal or neonatal deaths. Pre-eclampsia occurred in 22.7% of pregnancies, being the most frequent maternal complication. Pre-term premature rupture of membranes and severe postpartum hemorrhage occurred in 9.1% of pregnancies each. Five cases of premature births (22.7%), and five infants with low-birth weight (21.7%) were registered.

Conclusions
This cohort study of pregnant women with systemic vasculitis shows that a considerable number of vasculitis relapses and pregnancy complications occur. These findings emphasize the convenience of managing these special situations in expert reference centers.

PO11:117 | Behçet's disease and pregnancy: An updated review

Author

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Citation

Briante, M., Merlino, L., Prete, F.D., Lobozzo, B., Matys, V., Galli, C., Mandosi, C., Priori, R., Piccioni, M.G. Behçet's disease and pregnancy: An updated review.

Purpose
Behcet's syndrome is a chronic inflammatory disease with a vasculitic component of unknown etiology. Its typical symptoms comprehend recurrent mucocutaneous oral and genital aphthae, pustular and ocular lesions. However, rarer and more feared manifestations are neuro-Behcet, arthritis and vascular involvement, both arterial and venous. Considering the epidemiological features of the disease, which is typically manifested in fertile years, it is crucial to investigate the impact of Behcet's syndrome on pregnancy. The aim of this review is to analyze, through the published literature, the relationship between Behcet's disease and pregnancy and the potential risks on the maternal-fetal unit.

Methods
A systematic research has been conducted by means of PubMed and Google Scholar database, updated until April, 2023. The keywords used for the search were: "Behcet's disease" or "Behcet's syndrome" and "pregnancy", "vasculitis in pregnancy". Based on these terms, retrospective and prospective clinical studies, review articles and original articles of interest were analyzed with regard to Behcet's disease in pregnancy.

Results
At the time being, there is no extensive literature on the mutual relationship between the disease and pregnancy in affected patients, on how Behcet's syndrome influences the obstetrical outcomes and how the gravidic state affects the course of the disease. Different data have been published about adverse neonatal outcomes and pregnancy complications but events such as miscarriage, intra-uterine growth restriction and delivery by cesarean section seem to be more frequent in affected patients.

Different observations on the course of the disease have been reported in the literature. Some authors suggest no correlation between Behcet's disease and gestation but both improvement and worsening of manifestations have been reported. A possible explanation for the remission of symptoms could be the relative immunosuppressive state induced by pregnancy. A particular light has been shed on the thromboembolic events during gestational period and post-partum.

Conclusion

Based on the state of the art, pregnancy is not contraindicated in patients affected by Behcet's disease. It is, however, mandatory to provide an accurate pre-conceptional counseling and a strict follow-up of the pregnancy in high-risk pregnancy units, composed of a multidisciplinary team.

PO11:119 | Is PFAPA Syndrome at the beginning of a pathway to behcet's disease?

Author
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Citation
Kilic, S.S., Bedir, A.G. Is PFAPA Syndrome at the beginning of a pathway to behcet's disease?

Background

Periodic fever, aphthous stomatitis, pharyngitis, and adenitis (PFAPA) and Behçet disease are characterized by recurrent oral aphthae and various systemic manifestations.

Method

This study included 150 cases between the ages of 2-18, including 60 with PFAPA syndrome, 30 with Juvenile Behçet's Disease, and 60 healthy volunteers. The data of the patients were reviewed retrospectively. All patients and healthy controls were asked to fill out a PedsQL questionnaire form with their parents.

Results

The mean age of diagnosis in the PFAPA group is 29 months, whereas it is 114 months in the Juvenile Behçet group. The average age of diagnosis in the Behçet group is significantly higher than that of the PFAPA group ($p<0.001$). The mean attack duration was longer in males than in females

with PFAPA syndrome ($p=0.015<0.05$). The prevalence of lymphadenopathy in the neck was higher among PFAPA patients than in the Behcet and control groups ($p<0.001$). PFAPA and Behçet's patients had a higher fever rate than the control group, followed by aphthous ulcers. Painful skin lesions, redness in the eyes, uveitis, testicular pain, and genital ulcers were observed more frequently in Behçet patients compared to the PFAPA and control groups ($p<0.001$). The prevalence of a family history of PFAPA was found to be statistically higher in PFAPA patients compared to the other groups ($p<0.001$). While Behçet patients had significantly lower mean values of ANS ($p=0.010<0.05$), CRP ($p<0.001$), and serum amyloid A ($p<0.001$) compared to PFAPA patients. HLA-B35 positivity was more frequent in PFAPA patients than in Behçet's and control groups ($p=0.001<0.05$). HLA-B51 positivity exhibited the highest prevalence among all study groups in the Behçet patient group, with a rate of 35.59% (n=23).

In juvenile Behcet's and PFAPA patients, the total scale score of the PedsQL Questionnaire form was lower than in the control patients.

Conclusion

Patients with Pfapa syndrome and Behcet's disease have some similarities, including aphthous stomatitis, articular symptoms and fever, although their clinical severity is different. Further studies are needed to determine whether Pfapa syndrome is at the beginning of a pathway to Behcet's disease in some patients.

PO11:120 | Safety of infliximab in pregnant women with takayasu arteritis: A case report and literature review

Author
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Citaion
Codirenzi, M., Padoan, R., Davanzo, F., Iorio, L., Campaniello, D., Doria, A. Safety of infliximab in pregnant women with takayasu arteritis: A case report and literature review.

Background

Takayasu arteritis (TAK) is a rare large vessels vasculitis affecting mainly women of childbearing age and might be associated with a high rate of obstetrical complication during pregnancy [1]. Despite the proven safety of infliximab in pregnant women affected with other diseases [2], there is a lack of literature regarding TAK patients.

Methods

Starting from our case we conducted an extensive review of the PubMed Medline database search using the following combination of mesh terms: “Takayasu arteritis”, “Infliximab”, “anti TNF-alfa”, “pregnancy” “breastfeeding”.

Results

we reported the case of a women with a long-standing TAK, diagnosed twelve years before with thoracic aorta involvement and central retinal artery occlusion, treated with combined methotrexate (MTX) and infliximab (IFX), achieving a sustained disease remission. Given the desire to become pregnant, at the age of 31 years, MTX was interrupted and IFX was continued. She got pregnant at 32 years old and she received IFX until 23 weeks of gestation, then pregnancy progressed only on low-dose daily prednisolone. Delivery occurred at the 37th week without any complications. She experienced a second pregnancy two years later, this time IFX was administered until the 32nd week, a healthy infant was born at term. After both pregnancies the patient continued IFX maintenance and breastfed, no disease relapse occurred during the follow-up.

We found only one report about IFX during pregnancy in TAK, however no data about the duration of therapy and pregnancy outcome was provided [1].

Conclusion

Based on the outcomes of our case, the benefits of using IFX during pregnancy in women with TAK include preventing relapses and sparing glucocorticoid doses. Moreover, current literature data on other diseases confirm that this monoclonal antibody carries low fetal risk and is compatible with use during conception and pregnancy, especially during the first two trimesters.

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