Table 1

	All patients	Only those with suspected autoimmune or chronic inflammatory disease in referral note	Patients referred for other reasons (fibromyalgia, arthralgia, myalgia, osteoporosis, etc.)	p
Number (%)	136 (100)	71 (52.2)	65 (47.8)	NA
Age, mean years (SD)	51.8 (16.3)	50.7 (16.4)	53.1 (16.2)	NS
Men, n (%)	24 (17.6)	15 (21.1)	9 (13.8)	NS
Time between referral and triage, median days (IQR)	46.5 (23–140)	34 (15.5–124.5)	54 (28–441)	0,017
Triage resolution				
Urgent control, n (%)	92 (67.6)	55 (77.5)	37 (56.9)	0,011
Normal Control, n (%)	25 (18.4)	12 (16.9)	13 (20)	NS
Primary care coordination, n (%)	19 (14)	4 (5.6)	15 (23.1)	0,003
Time between triage and first control, median days (IQR)	21 (14–42)	21 (12.5–41)	26 (21–42)	NS
First control resolution, n (%)	96 (70.6)	54 (76.1)	42 (64.6)	NS
Diagnosis confirmation, n (%)	37 (38.5)	26 (48.1)	11 (16.9)	0,028
Continue control, n (%)	41 (42.7)	26 (48.1)	15 (23.1)	NS
Discharge to primary care, n (%)	18 (18.8)	2 (3.7)	16 (24.6)	<0,001

SD: standard deviation; n: number; IQR: Interquartile range

Conclusion: We consider this strategy as successful in reducing care times and identifying patients who require an early start of treatment and close control. Referral notes from primary care were generally adequate to identify patients who required to continue rheumatologist control.

References: None.

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THU0560

PRIMARY CARE PHYSICIAN PERSPECTIVES ON DELAYS IN DIAGNOSIS OF AXIAL SPONDYLOARTHRITIS: A QUALITATIVE STUDY

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Background: The average delay in diagnosis for patients with any form of spondyloarthritis (SpA) ranges from 7 to 10 years [1–5]. In axial spondyloarthritis (axSpA), a subgroup of SpA, it is 5 to 14 years [4, 6, 7]. Factors that contribute to this delay include the lack of diagnostic criteria for axSpA and the difficulty in distinguishing inflammatory back pain (IBP), a key symptom of axSpA, from other highly prevalent forms of low back pain [8–10]. This impedes timely referral of these patients to rheumatologic care and initiation of appropriate treatment.

Objectives: Describe understanding of, attitudes towards, and practices regarding axSpA among primary care physicians.

Methods: We recruited 18 primary care physicians practicing in the United States as part of a larger qualitative study: the SpondyloArthritis Screening and Early Detection (SpA-SED) Study. We used purposive sampling with a goal of including an equal number of family medicine and internal medicine physicians who were balanced by gender. Physicians provided informed consent to participate in an in-depth interview (up to 60 minutes), conducted in person (n = 3) or over the phone (n = 15), between February and May 2019. The interview guide

was developed by a multidisciplinary team, with input from rheumatologists. Topics included the physicians' approaches to evaluating back pain, their awareness about axSpA, their differential diagnosis of axSpA, the laboratory tests and imaging studies ordered when axSpA is suspected, their referral patterns for patients with presumed axSpA, their thoughts about factors contributing to diagnostic delay in axSpA, and their opinions about an Inflammatory Back Pain Assessment – ASAS criteria screening tool [5].

Results: Barriers to early diagnosis included patient factors (eg, multiple complaints, back pain not being the chief complaint), disease characteristics (eg, slow rate of disease progression), physician characteristics (eg, lack of rapport between patients and their primary care physicians), and structural/system issues (eg, lack of time). Most physicians reported that they would perform laboratory tests before referring a patient to a rheumatologist.

Conclusion: Primary care physicians were surprised to learn of the average delay to axSpA diagnosis, considered that this lengthy delay was problematic, and agreed that improvements are needed in screening for and early detection of axSpA. Physicians believed that there would be a role for using a screening tool in the primary care setting to improve diagnostic delay, but that evidence to support its implementation is needed.

References:

- [1] Dougados M et al. *Arthritis Rheum*. 1991;34:1218–27.
- [2] Amor B et al. *Rev Rhum Mal Osteoartic*. 1990;57:85–9.
- [3] van der Linden S et al. *Arthritis Rheum*. 1984;27:361–8.
- [4] Deodhar A et al. *Arthritis Rheumatol*. 2016;68:1669–76.
- [5] Sieper J et al. *Ann Rheum Dis*. 2009;68:784–8.
- [6] Sykes MP et al. *Rheumatology (Oxford)*. 2015;54:2283–4.
- [7] Redeker I et al. *Rheumatology (Oxford)*. 2019;58:1634–8.
- [8] Strand V et al. *Mayo Clin Proc*. 2017;92:555–64.
- [9] Proft F et al. *Ther Adv Musculoskelet Dis*. 2018;10:129–39.
- [10] Bohn R et al. *Clin Exp Rheumatol*. 2018;36: 263–74.

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THU0561

PREDICTING LIVER TOXICITY CAUSED BY CONVENTIONAL SYNTHETIC DISEASE-MODIFYING ANTIRHEUMATIC DRUGS

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Background: Routine laboratory testing is recommended for early identification of toxicity during conventional synthetic disease modifying antirheumatic drug (csDMARD) treatment. Based on expert consensus, testing is recommended every 2–4 weeks for the first 3 months and quarterly thereafter (1).

Objectives: In addition to evaluating the incidence of alanine transaminase (ALT) elevations in rheumatoid arthritis (RA) patients initiated on 1–2 csDMARDs, we aimed to distinguish patterns in ALT levels to develop a model for identifying patients at high risk for liver toxicity.

Methods: We identified RA patients who were initiated a new csDMARD course at the rheumatology clinic of Turku University Hospital in 2013–2019. Baseline and follow-up safety monitoring results were drawn from the electronic health record (EHR) data. Data on diagnoses and csDMARD initiation/cessation dates were manually confirmed from the EHR.

As the primary endpoint, we used ALT-elevations of more than twice the upper limit of reference range (women ≥ 70 U/l, men ≥ 100 U/l) within 6 months after treatment initiation. Intergroup differences were tested using Mann-Whitney test for continuous variables and the chi-square test or Fisher's exact test (n<5) for categorical variables. Associations between different

characteristics and the primary endpoint were tested using Cox proportional hazards regression.

Results: We identified 2851 RA patients of whom 1017 initiated a new csDMARD course requiring laboratory monitoring. Of these, 860 patients (58.9 years, 68% women, 65% seropositive) were included in the analyses after excluding patients with missing laboratory results (n=148) or elevated ALT at baseline (n=9). Of the 860 patients, 220 initiated two csDMARDs simultaneously [99% sulfasalazine (SSZ) and methotrexate (MTX)]. Primary endpoint was reached in 55 of 860 (6.4%) patients, including 10 who initiated two csDMARDs. Of these 55 patients, primary endpoint was reached in 40 of 55 (73%) patients during first three follow-up tests. In 31 of 55 (56%) patients, including 3 initiators of 2 csDMARDs, elevated ALT led to csDMARD cessation during the first 6 months. In Cox proportional hazards model with age, sex, seropositivity, baseline ALT, and csDMARDs as the explanatory variables, only baseline ALT level [hazard ratio 1.56 per 1 SD increase, 95% confidence interval (CI) 1.30–1.88, $p < 0.001$] was associated with incident ALT-elevations. Survival according to normalized baseline ALT is shown in Figure, where normalized ALT value of 1.0 refers to the upper limit of reference range (women 35 U/l, men 50 U/l).

Table. Multivariable Cox proportional hazards model including the results of the first follow-up laboratory test. Only values before occurrence of primary endpoint were used (n=843).

Characteristic	Hazard ratio (95% CI)	P Value
Age (per year)	1.00 (0.98-1.02)	0.78
Sex (male)	0.50 (0.21-1.15)	0.10
Seronegativity	0.88 (0.44-1.75)	0.71
Baseline ALT*	1.72 (1.32-2.25)	<0.001
ALT / t (per 1 SD increase / 30 days) §	1.33 (1.17-1.52)	<0.001
Methotrexate	0.58 (0.22-1.52)	0.27
Sulfasalazine	0.95 (0.38-2.35)	0.91
Azathioprine	2.30 (0.48-11.13)	0.30
Leflunomide	1.08 (0.23-5.16)	0.92

*Normalized ALT according to sex-specific reference range; §Rate of change from baseline to 1st follow-up test

Conclusion: Most incident ALT elevations can be predicted before the first csDMARD dose. Patients with elevated ALT at baseline or a rising trend at first follow-up are at high risk for liver toxicity and benefit from frequent testing.

References:

- [1] Saag KG et al. American College of Rheumatology 2008 recommendations for the use of nonbiologic and biologic disease-modifying antirheumatic drugs in rheumatoid arthritis. *Arthritis Rheum* 2008;59:762-84.

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THU0562

ECONOMIC IMPACT ASSOCIATED WITH COMPLICATIONS OF WOMEN IN REPRODUCTIVE AGE LIVING WITH INFLAMMATORY IMMUNE-MEDIATED DISEASES (PSO, PSA, RA, AXSPA) IN SPAIN

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Background: Cost of the complications that may appear during reproductive age in women living with inflammatory immune-mediated diseases have scarcely been studied.

Objectives: To obtain an expert consensus in the use of resources associated to complications of women in reproductive age living with immune-mediated diseases: psoriasis (PSO), psoriatic arthritis (PsA), rheumatoid arthritis (RA) and axial spondyloarthritis (axSpA) and estimate an economic impact.

Methods: A cost-analysis was developed to estimate the impact associated with the complications of women of reproductive age with PSO, PsA, RA and axSpA. The analysis considered the complications during fertility and conception (preconception consultation and assisted reproduction), in pregnancy (miscarriage in the first trimester, late abortion in the second trimester, preeclampsia, delayed or restricted intrauterine growth and threat of premature delivery) and in the postpartum (admissions in neonatology of premature infants).

An online questionnaire was designed for the validation of the inputs used in the cost-analysis. Subsequently, the questionnaire was sent to a multidisciplinary panel composed of, rheumatologist, gynecologists, neonatologists and dermatologist. A consensus meeting was carried out to validate and agree the parameters used in the analysis.

Unitary cost for resources (€,2019) were obtained from national local databases. The perspective of analysis was the National Healthcare System and the time horizon was one year.

Results: During fertility and conception, an annual cost per patient of € 229 was estimated for a preconception consultation in a patient with PSO, of € 3,642 for a preconception consultation in patients with PsA, RA and axSpA and € 4,339 for assisted reproduction.

Women with complications in pregnancy had an annual cost per patient of € 1,214 for a miscarriage in the first trimester, € 4,419 for a late abortion in the second trimester, € 11,251 for preeclampsia € 3,183 for delayed or restricted intrauterine growth and € 12,122 for the threat of premature delivery.

In the postpartum complications, an annual cost per patient of € 120,364, € 44,709 and € 5,507 were estimated associated with admissions in neonatology of premature infants of <28 weeks, from 28 to 32 weeks and from 33 to 37 weeks, respectively.

Conclusion: This modeling provides insight on the economic burden of complications associated with women in reproductive age for immune-mediated diseases (PSO, PsA, RA, axSpA). Individualization of treatment, additional and close monitoring may reduce the risk and burden of these complications.

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THU0563

IMMUNOGENICITY AND SAFETY OF 23-VALENT PNEUMOCOCCAL VACCINE IN PATIENTS WITH ANKYLOSING SPONDYLITIS (PRELIMINARY RESULTS).

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Background: For the treatment of patients with ankylosing spondylitis (AS), biological drugs are widely used, which can effectively control the activity of the disease and radically change the prognosis. However, the use of these drugs is associated with an increasing risk of infections, some of which can probably be prevented by vaccination.

Objectives: The aim of the study was to evaluate the immunogenicity and safety of the 23-valent pneumococcal vaccine (PPV-23) in patients with AS.

Methods: The study included 18 patients with AS: 14 men, 4 women, age 38.7±11.5 years, duration of the disease 16.2±10.8 years. 5 patients had a history of more than 2 episodes of lower respiratory tract infections (pneumonia, bronchitis). At the time of inclusion in the study in 89% of patients, activity of