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Background: Cardiovascular risk (CVR) in patients (pts) with axial spondyloarthritis (axSpA) exceed the populational level. However, it remains unclear, which of the cardiovascular risk assessment systems is the most accurate in cases of chronic inflammation.

Objectives: of the current study were to assess the CVR in pts with axSpA and to compare different cardiovascular risk scales in these pts.

Methods: The study included 118 patients at the age of 25-65 years with diagnosis of axSpA fulfilling ASAS criteria (2009) from St. Petersburg' axSpA register. Three indices of cardiovascular risk evaluation (Systematic COronary Risk Evaluation (SCORE) with increasing coefficient 1.5 for inflammatory diseases, Reynolds Risk Score (RRS), and the third modification of QRESEARCH Cardiovascular Risk Algorithm (QRISK3) were calculated. For the pts below 40 years old only QRISK3 was calculated.

Figure 1. Cardiovascular risk evaluation indices in patients with axial spondyloarthritis, n=118 for QRISK3, n=72 for SCORE and RRS.

Results: Mean age of the pts was 44.3±11.1 years; 91(77.1%) pts were males, HLA-B27 positive – 83 (70.3%) of the pts; mean disease duration 13.0±8.3 years. Mean value of SCORE was 2.78±1.89%, of RRS – 5.28±3.31%, of QRISK3 – 7.91±3.8% (figure 1). Cronbach's alpha for the scales was 0.873.

Figure 2. QRISK3 index in axSpA patients 25-40 years old, n=46

High CVR (≥5 %) was found in 14 (11.7%) of the pts according to the SCORE, in 65 (55.1%) of the pts according to the RRS, and in 81 (69%) of the pts according to the QRISK3. Ranking of CVR severity did not match in SCORE and QRISK3 indices in 83.72% of cases, in SCORE and RRS – in 51.16% of cases, and in QRISK3 and RRS in 8% of cases. The SCORE index showed the lower values of the expected risk as compared to the QRISK3 and RRS (figure 1). In axSpA pts at age 25-40 years old (n=46, mean age 32.6±4.0 years, males 36 (78.3%)), mean value of QRISK3 was 1.16±0.99 %; in 14 from 46 (30.4%) of those pts increased CVR was registered (figure 2).

Conclusion: There was a discrepancy in the severity of CVR calculated using different rating scales in axSpA patients. The SCORE index showed lower values of CVR as compared to the QRISK3 and RRS, which hypothetically could be the consequence of CVR underestimation. QRISK3 demonstrated the highest CVR and was the only index useful in pts below 40 years old. To exclude hyper- or underestimation of CVR calculation more data about CVR calculations and frequency of CV events, occurring in axSpA patients are needed.

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SAT0394 CAN FECAL CALPROTECTIN PREDICT FUTURE DEVELOPMENT OF INFLAMMATORY BOWEL DISEASE IN AXIAL SPONDYLOARTHRITIS PATIENTS? – TREASURE REAL-LIFE DATA

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Background: Patients with active inflammatory bowel diseases (IBD) fecal calprotectin (FC) levels are high and FC can be used for diagnosis [1].

Objectives: This study aimed to investigate whether fecal calprotectin levels could predict future development of IBD in axSpA patients.

Methods: This study was practiced in three centers using TReasure database and that are able to measure FC. Fecal calprotectin levels were measured in 137 axSpA patients as of September 2018 and FC level ≥200 µg/g was considered significant. All study subjects were evaluated for IBD symptoms (loose defecation, mucous diarrhea, bloody defecation, bloody diarrhea, abdominal pain, obstruction, or pseudo-obstruction) at beginning of the study and every 3 months for the first year. 25 RA patients and 24 healthy volunteers were included as a control group. Disease activity was evaluated by the ASDAS CRP, BASDAI, BASFI, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), visual analog scale (VAS)-pain, VAS-fatigue, and tender and swollen joint count for axSpA patients.

Results: This study included 137 axSpA patients and all patients followed for 1 year. Of the 137 axSpA patients 33.6% were females and median (Q1-Q3) age was of 43 years (33-50 years), median (Q1-Q3) disease duration was 8.9 years (5.0-13.9 years). The median (Q1-Q3) fecal calprotectin level was 48 µg/g (30-122 µg/g) and FC level was ≥200 µg/g in 23/137 (16.8%) in axSpA patients. FC level was elevated in 15/24 (62.5%) RA patients and none of the healthy volunteers. Patients median (Q1-Q3) BASDAI was 2.2 (1.0-3.6) / 1.4 (0.4-2.2), median (Q1-Q3) BASFI 1.55 (0.4-3.4) / 1.5 (0.3-3.0) and median (Q1-Q3) ASDAS CRP 1.63 (1.3-2.2) / 1.5 (1.3-1.9) at baseline and first year respectively and there was no difference regarding fecal calprotectin level. In 1 year follow-up 9 (6.5%) patient had abdominal pain, 2 (1.4%) had bloody defecation, 1 (0.7%) had loose defecation and Crohn disease developed in an axSpA patient with high FC (266 µg/g) (Table 1). IBD occurrence rate was 0.73/100 patient-year for all SpA patients, and IBD occurrence rate was 4.34/100 patients year for SpA patients with ≥200 µg/g FC level.

Table 1. IBD symptom inquiry and development of IBD in the first year	
	n (%)
Loose defecation	1 (0.73)
Mucous diarrhea	0
Bloody defecation	2 (1.45)
Bloody diarrhea	0
Abdominal pain	9 (6.56)
Obstruction	0
Pseudo-obstruction	0
Inflammatory bowel disease	1 (0.73)

Conclusion: In one year follow-up, IBD occurrence rate was 0.73/100 patient-year, at a similar rate with DESIR cohort [2]. However, FC level may be a predictor for the development of IBD in SpA patients (occurrence rate 4.34/100 patients year). Further follow up duration and more patients may be needed to make conclusion in these field.

References:

- [1] Simioni, J., et al., *Fecal Calprotectin, Gut Inflammation and Spondyloarthritis*. Arch Med Res, 2019. 50(1): p. 41-46.
- [2] Wendling, D., et al., *Effect of Gut Involvement in Patients with High Probability of Early Spondyloarthritis: Data from the DESIR Cohort*. J Rheumatol, 2019.

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SAT0395

SOCIAL ISOLATION IS INDEPENDENTLY ASSOCIATED WITH MORE SEVERE DISEASE IN AXIAL SPONDYLOARTHRITIS

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Background: Social isolation has negative impacts on health and wellbeing at different stages of life. It is associated with longer sickness absence and increased mortality in the general population [1]. Reducing social isolation is a growing governmental priority in many countries such as the UK. The effects of social isolation on patients with rheumatic diseases have not been studied.

Objectives: To examine whether living alone impacts disease severity and quality of life among axial spondyloarthritis (axSpA) patients.

Methods: We conducted a single-centre cross-sectional study of consecutive patients meeting the ASAS axial SpA criteria in Liverpool, UK. Patients answered questionnaires including whether they lived alone, which we used as a proxy for social isolation. Disease assessment measures included BASDAI, spinal pain, BASFI, quality of life (EuroQol), global health and fatigue. We separately extracted self-reported anxiety or depression from the EuroQol questionnaire (as absent, moderate, severe) since it is an important associated factor. Patient characteristics were compared between patients who lived alone and those who did not, using descriptive statistics. The association between social isolation and each disease measure were assessed using multivariable linear models, adjusted for age, gender, post-code derived deprivation index, BMI, anxiety/depression and smoking status.

Results: A total of 353 patients (68% male, mean age 46 years) were studied; 82% met the modified New York criteria for ankylosing spondylitis. 58 (16%) patients reported living alone. These patients were older (49 vs 43 years, $P=0.006$), more frequently male (83 vs 65%, $P=0.008$), and more frequently current smokers (53 vs 31%, $p=0.009$). They were otherwise similar in the proportion meeting criteria for AS, HLA-B27 positivity, and BMI (Table 1). Self-reported anxiety or depression was not significantly different between the two groups. Regression models showed that patients living alone had 1 unit higher BASDAI, pain and BASFI than those who did not, independent of potential confounders (Table 2). Living alone was also associated with poorer quality of life, but not fatigue or global health.

Table 1. Patient characteristics compared according to whether they live alone.

	Do not live alone	Live alone	P value
N (%)	295 (83.6%)	58 (16.4%)	
Mean age, years (SD)	43.4 (14.0)	49.0 (12.4)	0.006
Males, n (%)	192 (65.1%)	48 (82.8%)	0.008
Meeting mNY criteria	238 (80.7%)	48 (82.8%)	0.712
HLA-B27 positive	109 (54.0%)	25 (71.4%)	0.054
Mean BMI, (SD)	28.17 (5.6)	29.40 (6.8)	0.196
Smoking status			
Current	87 (31.4%)	30 (52.6%)	0.009
Ex	52 (18.8%)	8 (14.0%)	
Never	138 (49.8%)	19 (33.3%)	
Self-reported anxiety or depression			
Absent	145 (49.2%)	22 (38.0%)	0.229
Moderate	120 (40.7%)	27 (46.6%)	
Extreme	30 (10.2%)	9 (15.5%)	
Deprivation Index, median (IQR)	2 (1, 5)	2 (1, 4)	0.190

Table 2. Impact of social isolation (living alone) on disease severity measures in axial spondyloarthritis.

BASDAI	1.0 (0.2 to 1.8)
Spinal pain	1.0 (0.03 to 1.9)
BASFI	1.0 (0.1 to 1.9)
Quality of life	-0.13 (-0.24 to -0.02)
Fatigue	0.1 (-0.7 to 0.9)
Global health	-0.03 (-0.8 to 0.7)

Data shown as coefficient (95%CI). Quality of life assessed using EuroQol. All other indices are on a scale of 0 (best) to 10 (worst).

Conclusion: Living alone - as a proxy for social isolation - was associated with more severe disease and poorer quality of life in axSpA patients, independent of depression and other confounders. Further studies are needed to examine the direction of causation, and whether lack of social support influences their ability to seek and/or benefit from healthcare provision.

References:

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SAT0396

INFLUENCE OF SMOKING AND OBESITY ON THERAPEUTIC RESPONSE IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS: A SYSTEMATIC LITERATURE REVIEW

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Background: Biological therapies have substantially improved the prognosis of patients with Spondyloarthritis (SpA). However, a satisfactory clinical response is not achieved in all patients and it is essential for the clinician to identify all those factors that predict treatment response. Although they are supposed as unfavorable and potentially avoidable factors, the influence of smoking and obesity as predictors of treatment response in SpA is unknown.

Objectives: To determine if smoking and obesity are factors of worse therapeutic response in patients with axial spondyloarthritis (axSpA).

Methods: Systematic review of the literature in MEDLINE and EMBASE until June 30, 2019 based on the PICO design method. Population (P): patients with axSpA. Intervention (I): smoking or obesity. Comparator (C): non-smokers and normal weight. Outcome (O): any of the response criteria currently validated for axSpA. A specific excel form was used for data collection, EndNote software for the management and organization of papers and the Oxford 2009 level for evidence evaluation.

Results: 1873 citations were recovered, 46 studies were selected for full-text review and 12 for data extraction: 6 for smoking and 6 for obesity. The design

INFLUENCE OF OBESITY IN THE RESPONSE TO BIOLOGICAL THERAPY IN RADIOGRAPHIC AND NON-RADIOGRAPHIC AXIAL SPONDYLOARTHRITIS				
Author	Design. Country. Total Patients. Treatment.	Patients per group	Outcomes	Influence. Evidence level.
Ottaviani 2012	Longitudinal observational (Retrospective cohorts) France 155 patients; ITNE	BMI 25 63 BMI 25-0 54 BMI 30 38	6 months: BASDAI 50; VAS 50; NSAID 50	Yes 2b
Gremese 2014	Longitudinal observational (Retrospective cohorts) Italy 170 patients; ITNE	BMI <25 92 BMI 25-0 55 BMI >30 23	12 months: BASDAI50; BASDAI	Yes 2b
Micheroli 2017	Longitudinal observational (Retrospective cohorts) Switzerland 624 patients; ITNE	BMI <25 332 BMI 25-0 204 BMI >30 88	6 months: ASAS 40; ASAS remission; BASDAI 50; ASDAS	Yes 2b
Rosas 2017	Cross-sectional Spain 57 patients; ITNE	BMI <25 17 BMI 25-0 25 BMI >30 15	BASDAI; ASDAS; BASFI	Yes 4
Hernandez-Brisle 2019	Prospective observational Spain; Holland 180 patients; ITNE	BMI <25 78 BMI >25 102	1 year: Δ BASDAI ≥ 2 Δ ASDAS ≥ 1.1; Clinical remission	Yes 2b
Hernandez 2019	Longitudinal observational Spain 147 patients; ITNE	BMI <25 27 BMI 25-0 61 BMI >30 15 Not reported 29	Withholding of treatment after 5 years of onset	No 2b