Disclosure of Interests: None declared.
DOI: 10.1136/annrheumdis-2021-eular.3330

POS1005

ASSESSMENT OF DAREA AND MODIFIED DAREA IN AN ARGENTINIAN-Guatemalan REACTIVE ARTHRITIS COHORT

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Background: Reactive Arthritis (ReA) is an inflammatory joint disease and, as in rheumatoid or psoriatic arthritis, composite indices are the most useful tools to measure disease activity. The Disease Activity Index for Reactive Arthritis (DAREA) is the only developed index for ReA, which requires a 66/68 joint count and CRP for its assessment, the latter being difficult to acquire in our setting. Therefore, we developed a simplified index, the modified DAREA (DAREAm), with a lower joint count and ESR for its evaluation.

Objectives: 1) To evaluate the DAREA and the DAREAm in a cohort of patients with diagnosis of ReA and post-infectious arthritis 2) To assess the correlation of the DAREA and DAREAm with several clinical variables, functional capacity and quality of life in a cohort of patients with ReA.

Methods: Patients with diagnosis of ReA (Calin79) and post-infectious arthritis were included. Demographic data were collected, patient's pain and global assessment were evaluated through a visual analog scale (VAS) and a 3-point scale (no pain = 0, mild = 1, moderate = 2, severe = 3), physician's global assessment, morning stiffness (MS) and VAS fatigue. Functional capacity was assessed by HAQ and quality of life according to EuroQol-5 dimensions (EQ-5D), and the activity indices DAS28, DAREA and DAREAm were calculated. Statistical analysis: a descriptive analysis of the variables and correlation between numerical variables with Spearman rank correlation were performed.

Results: 57 patients were included, 53 with diagnosis of ReA, the majority post urogenital (63%) and gastrointestinal (17%), and 4 with diagnosis of post-infectious arthritis. Fifty six percent were male, mean age: 40 years old (SD ± 14) and median ReA duration: 15 months (IQR 2-45). The number of painful and swollen joints in a 66/68 joint count showed a median of 2 (IQR 0-3) and 1 (IQR 1-2) respectively. Median VAS pain 43 (IQR 15-70), patient's disease activity 40 (IQR 20-60) and physician's 40 (IQR 20-60), MS 10 (IQR 0-50) and fatigue 30 (IQR 0-80). Median DAS28 3.6 (IQR 2.3-4.3), DAREA 7.4 (IQR 2.5-10.6), DAREAm 8.6 (IQR 4.6-12.7), HAQ 0.625 (IQR 0.125-1). The dimensions with the greatest compromise in the EQ-5D were pain/discomfort (63%) and anxiety/depression (51%), and the median VAS EQ-5D was 60 (IQR 32-80). DAREA correlated with DAREAm (rs= 0.89; p <0.001), DAS28 (rs= 0.84; p <0.001), medical VAS (rs= 0.60; p <0.001), MS (rs= 0.50; p <0.001), HAQ (rs= 0.53; p <0.001), VAS fatigue (rs= 0.57; p <0.001) and mobility subscales of the EQ5D (rs= 0.56; p <0.001), pain/discomfort (rs= 0.49; p <0.001) and anxiety/depression (rs= 0.61; p <0.001). The DAREAm correlated with DAS28 (rs= 0.93; p <0.001), physician VAS (rs= 0.58; p <0.001), fatigue VAS (rs= 0.53; p <0.001), HAQ (rs= 0.51; p <0.001) and the EQ5D subscales: mobility (rs= 0.64; p <0.001), pain/discomfort (rs= 0.56; p <0.001) and anxiety/depression (rs= 0.66; p <0.001).

Conclusion: This is the first study that assess activity indices in a cohort of patients with ReA. The DAREAm demonstrated a very good correlation with both DAREA and DAS28. We encourage the use of this simplified index in daily practice to evaluate patients with ReA.

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.3374

POS1006

ABERRANT TH17 CELLS EXPANSION AND RISK FACTORS IN ANKYLOSING SPONDYLITIS PATIENTS COMPLICATED WITH CARDIOVASCULAR EVENTS

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Background: The incidence of Ankylosing Spondylitis (AS) complicated with cardiovascular diseases (CVD) has increased in recent years [1]. However, identification of risk factors indicating the development of CAD in AS patients is lacking. Th17 cells are increasingly recognized to be important in atherogenesis

[2]. However, the role of these cells in the pathogenesis of ankylosing spondylitis patients complicated with cardiovascular events remains elusive.

Objectives: This study aimed to assess the level of circulating Th17 cells as well as other lymphocyte subsets such as Treg, Th, Ts, and NK cells in AS combined with CVD, and further to evaluate whether elevations in special PBMC subpopulations in AS patients indicate an increased risk of CVD.

Methods: Samples were assessed from 141 AS patients hospitalized at the Second Hospital of Shanxi Medical University (60 AS patients combined with CVD and 81 AS patients without CVD) and 100 healthy controls. The absolute numbers of lymphocytes and CD4+ T cells in peripheral blood were determined using Flow Cytometer. The association between PBMC subpopulations and CVD development in AS patients were analyzed using multivariable logistic regression.

Results: 1. Compared with AS group, AS with CVD group exhibited significant increases in the number of Th17 cells (P=0.001) and Treg cells (P=0.046). The ratio of Th17/Treg was also increased (P=0.085).

2. Analogous increases in the absolute number (P<0.001) and frequency (P<0.001) of Th1 cells, as well as the ratio of Th1/Th2 (P<0.001) and Th1/Treg (P=0.004) were also present in AS with CVD patients, compared to those without CVD.

3. Compared to HCs, 141 AS patients showed significantly decreased Treg cells (P<0.012) and increased Th17/Treg (P=0.001).

4. Logistic regression showed age (odds ratio: 1.09; 95% CI: 1.035-1.137), hypertension (odds ratio: 3.31; 95% CI: 1.152-9.528), diabetes (odds ratio: 8.03; 95% CI: 1.251-51.503), and elevated level of Th1 number (odds ratio: 1.01; 95% CI: 1.003-1.016) and DD (D-dimer) (odds ratio: 1.00; 95% CI: 1.000-1.002) were significantly correlated with the onset of CVD in AS patients.

5. Smoke, increased Th17 level, and use of NSAIDs were also positively correlated with the onset of CVD although the P-values did not reach significant.

Conclusion: Our data indicates aberrant expansion of Th17 cells in AS with CVD patients. Moreover, age, hypertension, diabetes, and increased level of Th1 in PBMC and DD are single independent risk factors for the presence of CVD in AS. The mechanisms of atherogenesis in AS may associate with the elevations in Th1 and Th17 cells. Imbalance of Th1/Th2 and Th17/Treg may be shared etiologic pathways of AS and CVD, providing attractive targets for the prevention and therapy of CVD development in AS patients.

REFERENCES:

- [1] Kim JH, Choi IA. Cardiovascular morbidity and mortality in patients with spondyloarthritis: A meta-analysis. *Int J Rheum Dis* (2020). doi: 10.1111/1756-185x.13970.
- [2] Saigusa R, Winkels H, Ley K. T cell subsets and functions in atherosclerosis. *Nat Rev Cardiol*. 2020 Jul;17(7):387-401. doi: 10.1038/s41569-020-0352-5.

Figure 1. Compared with AS group, AS with CVD group exhibited significant increases in the number of Th17 cells (P=0.001) and Treg cells (P=0.046). The ratio of Th17/Treg was also increased (P=0.085). The absolute number (P<0.001) and frequency (P<0.001) of Th1 cells, as well as the ratio of Th1/Th2 (P<0.001) and Th1/Treg (P=0.004) were also present in AS with CVD patients.

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.3442

POS1007

OPTIMIZING A REFERRAL STRATEGY FOR PATIENTS WITH A HIGH PROBABILITY OF AXIAL SPONDYLOARTHRITIS: THE ROLE OF AGE AND SYMPTOM DURATION

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Background: One of the most important prerequisites for a timely diagnosis of axial spondyloarthritis (axSpA) is the early referral of a patient with back pain to a rheumatologist. In the past years a number of referral strategies has been proposed,

most of them in line with the ASAS referral recommendations [1] and with a similar performance – about 30-40% of the referred patients can be diagnosed with axSpA after examination by a rheumatologist. In addition to physician-based strategies, an online self-referral (OSR) strategy has been recently proposed and evaluated about 20% of the patients being diagnosed with axSpA after rheumatologic evaluation [2].

Objectives: The objective of the current analysis was to investigate the role of age and symptom duration for the optimization of a physician-based and an OSR strategy for axSpA.

Methods: In the OptiRef study, patients with chronic back pain and suspicion of axSpA either referred by primary care physicians /orthopedists using the Berlin referral tool (=physician based) or based on a referral recommendation of an OSR were evaluated by rheumatologists in a specialized center [2]. All patients underwent a structured examination including imaging that resulted into the final diagnosis of axSpA or no axSpA. The relationship between age, symptom duration and the likelihood of axSpA diagnosis was evaluated in this analysis.

Results: A total of 360 patients (180 presented via the OSR and 180 referred by the physician based referral strategy) were included in this analysis. Patient's characteristics are shown in Table 1. A total of 71 patients (39.4%) in the physician-based group and 35 patients (19.4%) in the OSR group were finally diagnosed with axSpA. The heatmaps depicting the relationship between the proportions of patients diagnosed with axSpA and age plus symptom duration (Figure 1) showed a clear decline of the axSpA probability with increasing age. In the physician-referred group, however, axSpA was diagnosed even in patients who were above 50 years at the time-point of the examination, while there were only few patients with axSpA in the self-referred group aged 40-49 years, and none in the age group ≥ 50 years. Interestingly, there was no clear relationship between symptom duration and probability of the diagnosis: axSpA was diagnosed in a substantial proportion of patients even with a long history of back pain (>12 years) in both subgroups.

Conclusion: The probability of axSpA is high in patients suffering from back pain and aged <40 years with a substantial decline thereafter. Therefore, a referral strategy based on self-evaluation of symptoms should be more focused on a younger patient population, while physician-based strategies do not require such a restriction.

REFERENCES:

- [1] Poddubnyy D, et al. Ann Rheum Dis 2015 Aug; 74(8):1483-1487.
- [2] Proft F, et al. Semin Arthritis Rheum. 2020; 50(5):1015-1021.

Table 1. Patient characteristics

	Total N=360	Berlin tool N=180	Self-referral N=180	p-value
Diagnosis of axial SpA, n (%)	106 (29.4%)	71 (39.4%)	35 (19.4%)	<0.0001
Age, years, mean (SD)	36.9 (10.4)	37.2 (11.5)	36.6 (9.2)	>0.99
Male sex, n (%)	177 (49.2%)	100 (55.6%)	77 (42.8%)	0.02
Back pain duration, years, mean (SD)	7.9 (7.6)	6.5 (6.9)	9.2 (8.1)	<0.0001
HLA-B27 positive, n (%)	141 (40.9%)	104 (59.8%)	37 (21.6%)	<0.0001
CRP elevation, n (%)	52 (14.8%)	34 (19.4%)	18 (10.2%)	0.02
Inflammatory back pain, n (%)	204 (56.7%)	103 (57.2%)	101 (56.1%)	0.92

Figure 1. Heatmaps depicting the proportions of patients diagnosed with axSpA in relation to age and symptom duration in the physician-based (A) and OSR (B) groups.

Acknowledgements: We would like to thank all orthopaedists and primary care physicians who referred their patients. Further, we thank Dr. Anne-Katrin Weber and Dr. Susanne Lüders for the data collection support, Annegret Langdon for the data management support and Torsten Karge for set-up and support of the online screening tool.

Funding statement

The OptiRef study was supported by an unrestricted research grant from Novartis.

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.3567

POS1008

THE ROLE OF SERUM CALPROTECTIN IN THE DIAGNOSIS OF INFLAMMATORY BOWEL DISEASE IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Background: Ankylosing spondylitis (AS) and inflammatory bowel diseases (IBD) have many common features. Approximately one in two patients with axial spondyloarthritis have subclinical (histologically confirmed) inflammation of the intestine, and 5-10% of subclinical inflammation turns into Crohn's disease (CD) or Ulcerative colitis (UC) [1]. Colonoscopy is usually used to diagnose IBD, but this procedure is invasive. Laboratory biomarkers, as fecal calprotectin (FC) and serum calprotectin (SC) can be used to diagnosis of IBD. But there is no consensus regarding SC clinical utility. SC is exposed to proteolytic enzymes, but its level also increases with inflammation in the intestine and is associated with a higher disease activity [2]. SC levels positively correlate with CRP, ESR, disease activity in AS, but not as obvious as with FC [3,4].

Objectives: The aim of this study was to evaluate the possibility of using SC in the diagnosis of IBD in patients with AS.

Methods: In the analysis were included 50 patients with AS, fulfilling the modified New York criteria, among them man -36 (72%), woman -14 (28%), mean age of patients was 42.5 ± 9.9, mean disease duration – 13.4 ± 8.7 years. All patients were examined with ESR, CRP, FC (range: 100-1800 µg/g), esophagogastroduodenoscopy, colonoscopy and quantitative analysis of the SC level using ELISA (BUHLMANN MRP8/14 ELISA, range: 0.4-3.9 µg/ml).

Results: All patients had a high disease activity, mean BASDAI was 5.3 ± 1.8, mean ASDAS CRP 3.7 ± 1.01, mean ASDAS ESR 3.6 ± 1.01. 80 % patients had high FC level (more than 100 µg/g), while only 18% patients had an increase of SC level. IBD were diagnosed in 11 cases: 6 patients (12 %) with CD and 5 patients (10 %) - UC, in the remaining cases (78%) was no intestinal pathology. Only 2 patients with IBD had a high SC level. SC level was more correlated with ESR (r=0.5) and CRP (r=0.5) (p <0.05) levels, than with FC level (r=0.4) (p <0.05).

Conclusion: The results showed that there is currently insufficient data to assess the possibility of using SC in the diagnosis of IBD in patients with AS. There is a significant association between the SC, CRP and ESR, but not fecal calprotectin. Potentially SC may be more representative of systemic inflammation than an intestinal inflammation.

REFERENCES:

- [1] Klingberg, E., Strid, H., Stahl, A. et al. A longitudinal study of fecal calprotectin and the development of inflammatory bowel disease in ankylosing spondylitis. A longitudinal study of fecal calprotectin and the development of inflammatory bowel disease in ankylosing spondylitis. Arthritis Res Ther 2017; 19(1):21
- [2] Kalla R, Kennedy NA, Ventham NT, Boyapati RK, Adams AT, Nimmo ER, Visconti MR, Drummond H, Ho GT, Pattenden RJ, Wilson DC, Satsangi J. Serum Calprotectin: A Novel Diagnostic and Prognostic Marker in Inflammatory Bowel Diseases. Am J Gastroenterol. 2016 Dec;111(12):1796-1805
- [3] Hu H, Du F, Zhang S, Zhang W. Serum calprotectin correlates with risk and disease severity of ankylosing spondylitis and its change during first month might predict favorable response to treatment. Mod Rheumatol. 2019 Sep;29(5):836-842.
- [4] Azamezani K, T. Shahrokh S, Mirzaei S, Asadzadeh Aghdaei H, Amini Kadijani A. The role of serum calprotectin as a novel biomarker in inflammatory bowel diseases: a review study. Gastroenterol Hepatol Bed Bench. 2019;12(3):183-189.

Disclosure of Interests: None declared.

DOI: 10.1136/annrheumdis-2021-eular.3584