POS1011

PREDICTORS OF ENDOTHELIAL DYSFUNCTION IN ANKYLOSING SPONDYLITIS

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Background: Cardiovascular (CV) disease is the leading cause of death in Ankylosing Spondylitis (AS). Chronic systemic inflammation driven endothelial dysfunction leading to accelerated atherosclerosis results in premature mortality. Endothelial dysfunction is potentially treatable hence a therapeutic target. Predictive biomarkers for endothelial dysfunction would allow tailoring therapy to the individual.

Objectives: To assess the endothelial dysfunction in AS in context of markers of inflammation and oxidative stress in AS patients.

Methods: Sub group-analysis of our previous studies of AS¹⁻³ was carried out and 80 AS patients were compared with 40 healthy controls matched for age and sex that were also part of these studies.^{2,3} Such analysis had so far not been performed in this cohort. Patients with traditional CV risk factors had been excluded in these studies. Flow-mediated dilatation (FMD), as a measure of endothelial function, was assessed by AngioDefender (Everist Health, Ann Arbor, MI). Inflammatory measures included: Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and Ankylosing Spondylitis Disease Activity Score (ASDAS) in AS. We also assayed markers of inflammation, including C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), proinflammatory cytokines (interleukin [IL]-1, IL-6, and tumor necrosis factor [TNF]-α), and endothelial dysfunction, including lipids and nitrite and marker of oxidative stress, TBARS.

Results: FMD was significantly lower in AS patients compared with controls [(5.80±0.35% vs. 9.09±0.35%, p<0.05) reduced by approximately 36%] whereas serum nitrite, TBARS, total cholesterol and LDL levels were significantly higher in AS compared with controls (p<0.05). Compared with controls, AS patients had significantly high BASDAI, ASDAS and increased concentrations of ESR, CRP, TNF-α, and IL-6. In AS, FMD inversely correlated with ASDAS, CRP (Figure 1A), TNF-α (Figure 1B), nitrite (Figure 1C) and TBARS (Figure 1D) and positively correlated with HDL (p<0.05).

Conclusion: In AS, FMD was impaired, indicating endothelial dysfunction. ASDAS, CRP, TNF-α, nitrite, and TBARS were independent predictors of FMD in AS. AS-related inflammatory mechanisms (TNF-α, IL-6) and markers of vascular function and oxidative stress (CRP, nitrite and TBARS) may all be involved in the development of cardiovascular disease in AS and these predictors could serve as a novel therapeutic targets for preventing CV risk in AS.

Figure 1. Correlation of FMD with CRP, TNF-α, Nitrite and TBARS

REFERENCES:

- [1] Garg N, Krishan P, Syngle A. Rosuvastatin improves endothelial dysfunction in ankylosing spondylitis. *Clin Rheumatol*. 2015;34:1065-1071.
- [2] Verma I, Syngle A, Krishan P, Garg N. Endothelial Progenitor Cells as a Marker of Endothelial Dysfunction and Atherosclerosis in Ankylosing Spondylitis. *International Journal of Angiology*. 2017;26:36-42.
- [3] Verma I, Krishan P, Syngle A. Predictors of Atherosclerosis in Ankylosing Spondylitis. *Rheumatol Ther*. 2015;2(2): 173-182.

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POS1012

HOW IMPORTANT WOULD BE THE IMPACT OF SPONDYLOARTHRITIS ON MILITARY POPULATION'S WORKING LIFE?

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Background: Spondyloarthritis is a group of chronic inflammatory diseases involving axial and peripheral joints. It mainly affects young patients typically of working age. Therefore, its impact on work outcomes may be considerable particularly in military patients.

Objectives: The aim of this study was to evaluate the impact of spondyloarthritis on work ability and productivity in military patients, and to assess relationship between work productivity loss and disease activity.

Methods: Thirty Three patients diagnosed with spondyloarthritis in the military hospital of Tunis were included in the study. Age, gender and C-reactive protein were recorded. Data related to duration of the disease, Ankylosing Spondylitis Disease Activity Score (ASDAS) and Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) were also recorded. Employed patients completed Work Productivity and Activity Impairment (WPAI) questionnaire which assesses four subscales: presenteeism, absenteeism, overall work impairment and daily activity impairment in the 7 past days.

Results: Among the thirty three patients, 63 % were men and 37% were women. The average age was 43,7 ± 13,5. The average duration of disease was 8,5 ± 7,75 years. Mean C-Reactive protein was 27,5 ± 39,3. Mean ASDAS and BASDAI were 3,12 ± 1,39 and 4,26 ± 1,78 respectively. 22 patients (66%) had an active disease and 11 (33%) were in remission. 48,4% of patients were using NSAIDs, 48,4% were under DMARDs and 42% were under biologics (12 patients using TNF-alpha blockers and 2 patients were given IL-17 inhibitors). Among this patients, 27 were employed. Three patients (11%) had a total work disability and were retired from work and two have been outplaced.

Employed patients worked an average of 35,6 ± 10,3 hours per week and missed an average of 3,48 ± 6,49 hours per week. The mean rates of absenteeism, presenteeism and work productivity loss were 8,8 ± 16,9 %, 48,4 ± 19,9 % and 48,6 ± 19,7 %.

There was a statistically significant correlation between BASDAI and work missed hours (p<0,05, r=0,48), absenteeism (p<0,05, r=0,48), presenteeism (p<0,01, r=0,669), work impairment (p<0,01, r=0,669), activity impairment (p<0,05, r=0,475) and work productivity loss (p<0,05, r=0,475), as well as between ASDAS CRP and presenteeism (p<0,05, r= 0,593), work impairment (p<0,05, r=0,593), activity impairment (p<0,05, r=0,460) and work productivity loss (p<0,05, r=0,460). No relation was found between WPAI indexes and C-reactive protein.

Conclusion: This study demonstrates that spondyloarthritis has a major impact on military patients' work productivity with a significant correlation between WPAI indexes and disease activity scores (ASDAS CRP and BASDAI). No relation was found with C-reactive protein.

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POS1013

LET'S TAKE A LOOK AT THE SYMPHYSIS PUBIC AREA IN SPONDYLOARTHRITIS

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Background: Symphysis pubic (SP) is the frequent site of enthesitis in spondyloarthritis (SpA). Radiological changes in SP appear later in the course of the disease. Underdiagnosed, its prevalence varies from 4% to 47% (1), depending on imaging modalities.

Objectives: This study aimed to evaluate the prevalence of SP involvement in patients with spondyloarthritis (SpA). We also focused on the relation between radiographical changes and clinical findings.

Methods: It was a cross-sectional study, including patients with SpA according to the Assessment of SpondyloArthritis International Society (ASAS) criteria. We collected the following data: age, gender, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Ankylosing Spondylitis Disease Activity Score (ASDAS), and Bath Ankylosing Spondylitis Functional Index (BASFI).

Pelvic radiographs were examined by 2 experienced rheumatologists. Grading symphyseal involvement was made as follow: scores ranged from 0-4 per reading: grade 0 = normal; grade 1 = subtle irregularity and/or subchondral sclerosis, grade 2 = clear erosions, 3 = marked sclerosis, grade 4 = ankylosis. We divided our patients into two groups: G0 patients without SP changes and G1 patients with SP changes.

Results: One hundred and thirty-one patients were included, 84 were male, and 48 were female. The sex ratio M/F was 1.72. The mean age was 41.32±12.42

years. The mean disease duration was 12.65 ± 9.49 years. The clinical presentation of SpA was peripheral in 61 cases and axial in 118 cases. The mean disease scores activity was: BASDAI: 3.94 ± 2.046 and ASDASCRP: 2.75 ± 1.05 . The mean BASFI was 4.17 ± 2.7 .

SP changes were observed in 31 patients: score 1 (n=14), score 2 (n=8), score 3 (n=8) and score 4 (n=4). Sex ratios M/F were 2.1 and 1.65 in G1 and G0, respectively (p=0.23). No statistically significant differences were reported between the two groups G0 and G1: mean age (40.48 vs. 43.45, p=0.324), mean disease duration (11.19 vs. 14.45, p=0.218), mean BASDAI (3.8 versus 3.9, p=0.850), mean ASDAS-ESR (3.09 vs. 2.55, p=0.113) and mean BASFI (3.76 versus 4.96, p=0.06) respectively. In G1, nine patients had hip involvement (p=0.203). Enthesitis was more common in patients with SP changes (p=0.02).

Conclusion: In our study, the presence of enthesitis was associated with SP changes. Surprisingly, age and disease duration did not influence SP changes (1).

REFERENCES:

- [1] Kang Y, Ahn JM, Lee E, Lee JW, Kang HS. Active inflammatory changes around the pubic symphysis in patients with axial spondyloarthritis: Magnetic resonance imaging characteristics and association with clinical factors. *Eur J Radiol.* mars 2020;124:108802.

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POS1014

CENTRAL SENSITIZATION HAS MAJOR IMPACT ON QUALITY OF LIFE IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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Background: Maintaining optimal health-related quality of life (QoL) is the ultimate goal of treatment in axial spondyloarthritis (axSpA). Chronic pain has a large potential impact on QoL. Central sensitization (CS) may explain part of the chronic pain in axSpA. However, the role of central sensitization (CS) herein has only been studied to a limited degree and current axSpA guidelines pay little attention to identification and treatment of CS.

Objectives: To explore the relationship between CS and QoL in axSpA.

Methods: Consecutive outpatients with axSpA from the Groningen Leeuwarden Axial Spondyloarthritis (GLAS) cohort were included. CS was assessed with the Central Sensitization Inventory (CSI; 0-100), QoL with the AS Quality of Life questionnaire (ASQoL; 0-18) and disease activity with the AS Disease Activity Score (ASDAS_{CRP}). A high probability of CS was defined as CSI score ≥ 40 and active disease as ASDAS_{CRP} score ≥ 2.1 . Patient characteristics and clinical assessments were compared between groups with CSI score <40 and ≥ 40 . (1) Multivariable regression analysis was conducted to investigate the relationship between CSI and ASQoL scores, correcting for potential confounders.

Results: Of the 178 axSpA patients with available CSI score, 149 completed the ASQoL. Mean age of the 178 included patients was 47.4 ± 14.1 years, 78 (44%) were female, mean symptom duration was 21.4 ± 13.6 years and 88 (52%) were using bDMARDs. Mean CSI score was 38.0 ± 14.1 , mean ASQoL 6.0 ± 5.3 and mean ASDAS_{CRP} 2.1 ± 1.0 . CSI score ≥ 40 was significantly associated with higher mean ASQoL (9.7 vs. 3.3), higher mean ASDAS_{CRP} (2.6 vs. 1.7), female gender (60% vs. 29%) and more often enthesal involvement (61% vs. 26%) (Table 1).

Table 1. Selection of patient characteristics, disease activity and clinical outcome variables for patients with axSpA, divided in subgroups for CSI score with a cutoff point of 40.

Characteristics	All patients n = 178	CSI<40 n = 98 (55%)	CSI ≥ 40 n = 80 (45%)
Age (years)	47.4 $\pm$ 14.1	48.7 $\pm$ 15.0	45.8 $\pm$ 12.7
Female	78 (44)	27 (29)	44 (60)*
Symptom duration (years)	21.4 $\pm$ 13.6	21.5 $\pm$ 13.5	21.2 $\pm$ 13.8
HLA-B27+	133 (79)	70 (79)	54 (79)
Smoker	45 (27)	28 (32)	15 (23)
BMI (kg/m ²)	26.7 $\pm$ 5.0	26.2 $\pm$ 4.4	27.5 $\pm$ 5.8
Completed higher education ¹	81 (71)	48 (70)	34 (76)
Biological use	88 (52)	49 (52)	39 (51)
RDCI (0-9)	0.0 (0.0 – 1.0)	0.0 (0.0 – 1.0)	0.0 (0.0 – 1.8)
Peripheral arthritis ²	10 (6)	5 (6)	5 (8)
Enthesal involvement ³	64 (40)	23 (26)	38 (61)*
ASDAS _{CRP}	2.1 $\pm$ 1.0	1.7 $\pm$ 0.9	2.6 $\pm$ 1.0*
CRP (mg/ml)	2.9 (1.1 – 6.8)	2.6 (1.1-6.0)	3.6 (1.4 – 7.0)
ASQoL (0-18)	6.0 $\pm$ 5.3	3.3 $\pm$ 3.6	9.7 $\pm$ 4.9*
CSI (0-100)	38.0 $\pm$ 14.1	28.0 (23 – 34)	50.0 (43.0 – 56.0) ^{NA}

Values are n (%), mean $\pm$ SD or median (IQR).¹International Standard Classification of Education (ISCED) level ≥ 4 ; ²Swollen Joint Count >0 ; ³Maastricht Ankylosing Spondylitis Enthesitis Score >0 . *p<0.001. ASDASCRP: Ankylosing Spondylitis Disease Activity Score; ASQoL: Ankylosing Spondylitis Quality of Life questionnaire; CRP: C-reactive protein; CSI: Central Sensitization Inventory; RDCI: Rheumatic Disease Comorbidity Index.

Patients with low ASDAS_{CRP} (<2.1) and also low CSI score (<40) showed good QoL (median ASQoL 1.1). Patients with low ASDAS_{CRP} combined with high CSI score (≥ 40) and patients with high ASDAS_{CRP} (≥ 2.1) combined with low CSI score reported worse QoL (median ASQoL 5.6 and 4.1, respectively). Patients with high ASDAS_{CRP} and also high CSI score reported the worst QoL (median ASQoL 12.0). (Figure 1).

Figure 1. ASQoL score in patients with axSpA with CSI score ≥ 40 and <40 , divided for ASDAS_{CRP} (cutoff 2.1)

Additionally, in univariable analysis, the CSI score explained a large proportion of the variation of the ASQoL ($R^2=0.46$). This association remained significant after correction for ASDAS_{CRP}, gender, symptom duration, enthesal involvement, smoking status, BMI category, educational level and comorbidities in multivariable analysis (CSI p<0.001).

Conclusion: In daily clinical practice, CS seems strongly related to patient-reported QoL in patients with long-term axSpA.

REFERENCES:

- [1] Neblett R et al. *J Pain.* 2013;14:438–45.

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POS1015

ANTI-TNF DRUGS AND CARDIOVASCULAR EVENTS IN PATIENTS WITH SPONDYLOARTHRITIS

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Background: Cardiovascular (CVS) diseases are the leading cause of death worldwide and patients with rheumatic diseases have an increased CVS risk including stroke and myocardial infarction (MI) (1-3). CVS risk factors and CVS events are common in SpA (4). Delineating the CVS risk and the association with medications in patients with SpA would be useful.

Objectives: The objective of this study was to delineate the CVS risk and the association with medications in patients with SpA.

Methods: Patients with SpA and patients with non-specific back pain (NSBP) were identified in rheumatology and orthopedics clinics respectively. Clinical information and CVS events were retrieved. Incidence rates were calculated. Association analysis was performed to determine the CVS risk of SpA and other modifiable risk factors.

Results: A total of 5046 patients (SpA 2616 and NSBP 2430) were included from eight centers. Over 56 484 person-years of follow-up, 160 strokes, 84 MI and 262 major adverse cardiovascular events (MACE) were identified. Hypercholesterolemia was more prevalent in SpA (SpA 34.2%, NSBP 28.7%, P<0.01). Crude incidence rates of stroke and MI were higher in SpA patients. SpA was associated with a higher risk of MACE (HR 1.66, 95%CI 1.22-2.27, P<0.01) and cerebrovascular events (HR 1.42, 95%CI 1.01-2.00, p=0.04). The use of anti-tumor necrosis factor (TNF) drugs was associated with a reduced risk of MACE (HR 0.37, 95%CI 0.17-0.80, P=0.01) and cerebrovascular events (HR 0.21, 95%CI 0.06-0.78, P=0.02).