Background: The most important T-cell subtype in maintenance of immune tolerance is T regulatory cells (Treg). These are characterized by CD4 and CD25 receptors on surface, and by showing FoxP3 regulatory factor, which is necessary for maintaining the suppressive activity of Treg cells in peripheral blood (PB). Previous studies have studied Treg cells in PB and synovial fluid in patients with Juvenile Idiopathic Arthritis (JIA). However, there was insufficient evidence to draw robust conclusions about Treg implication in JIA, due to small sample size and variable results across studies. A deeper understanding of regulatory mechanism in JIA may increase comprehension on variability among JIA subtypes and may help to establish prognostic on the follow up.

Objectives: To analyze Treg cells level in PB of JIA patients and its relation with disease activity.

Methods: Descriptive, cross-sectional, observational study conducted in a regional reference centre for Pediatric Rheumatology. We included consecutive patients with JIA diagnosed by ILAR criteria. The primary variable was the Treg percentage in PB measured by flow cytometry. To assess JIA activity, we used disease activity indexes (JADAS10, 27, 71 – CRP/ESR and cJADAS), Wallace remission criteria, VAS disease activity by patient/parents and physicians, morning stiffness, multidimensional evaluation (JAMAR) and acute phase reactants (CRP and ESR). Assessment of long-term damage was evaluated with JADAS.

Association analyses among study variables and Treg levels were performed by Pearson’s correlation coefficient and Mann Whitney’s U test.

Results: Ongoing study, we present a preliminary analysis with first 50 JIA patients. Mean age (SD) was 11.3 yr (4.6), being females 60%. Most common JIA subtype was persistent oligoarticular (42%) followed by RFneg polyarticular (24%), 42% patients were treated by csDMARD and 46% by biological agents. Mean levels of CRP and ESR were 0.18 mg/dl (0.3) and 6.3 mm/hr (5.4), respectively. Mean Treg percentage in JIA was 2.8% (1.1). Mean of JADAS 27-ESR, JADAS 27-CRP and cJADAS were 3.6 (5.1), 3.7 (5.1), and 3.7 (5.5), respectively. Mean long-term damage scores were 0.48 (1.1) for JADAS and 0 for JADAS E.

The table shows the association between clinical variables and % of Treg. We can observe a significant, inverse and moderate correlation between Treg levels and disease activity by patient/parents, disability and quality of life (global and the physical component). Close to statistical significance, we found inverse and moderate correlation between Treg cells and all JADAS scores, cJADAS, disease activity by physician and morning stiffness. There was no association between Treg and acute phase reactants. Furthermore, there were no differences in Treg cells in Wallace remission (p=0.692) and regarding use of conventional or biological DMARD (p=0.864 and p=0.386, respectively).

Conclusion: According to our preliminary data, higher levels of Treg cells in PB of patients with JIA could be related with lesser disease activity and better quality of life. Larger studies are needed to confirm whether this Treg-mediated regulatory mechanism can have prognostic implication JIA.

Disclosure of Interests: None declared

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11. Basic and translational pain science

AB0176 RISK OF ANTI-CITRULLINATED PEPTIDE ANTIBODIES AND RHEUMATOID FACTOR IN MALE SMOKERS: DATA FROM KUWAIT REGISTRY FOR RHEUMATIC DISEASES (KRRD)

A. Al-Herz1, A. Sultan1, A. Almahmeed2, K. Saleih1, A. Al-Awadhi2, W. Al-Kandari3, E. Hassan1, A. Ghanem1, M. Hussain1, Y. Alf3, E. Nahar2, A. Aleni2, S. Hayat1, F. Abuabara1, A. Alde1, A. Al-Qadhi1, H. Alhajeri1, H. Behbehani2, N. Alhaddood1, A. Alsaiber1 on behalf of KRRD, 1Al-Amiri Hospital, Kuwait, Kuwait; 2Kuwait Institute for Medical Specializations, Kuwait, Kuwait; 3Farwaniya Hospital, Kuwait, Kuwait; 4Faculty of Medicine, Kuwait University, Jabiya, Kuwait; 5Mubarak Al-Kabeer Hospital, Jabiya, Kuwait; 6Jahra Hospital, Al Jahra, Kuwait; 7Sabah Hospital, Kuwait, Kuwait; 8University of Strathclyde, Department of Mathematics and Statistics, Glasgow, United Kingdom

Background: Smoking has been proposed to be associated with the development of anti-citrullinated peptide antibodies (ACPA) in rheumatoid arthritis (RA) patients.

Objectives: To study the relationship between smoking and ACPA as well as smoking and RF in patients with RA in Kuwait Registry for Rheumatic Diseases (KRRD).

Methods: Data on RA patients were extracted from KRRD from four major hospitals from February 2013 through December 2019. As females rarely smoke in Kuwait with a smoking prevalence of 3% in female RA patients in KRRD, females were excluded from the study population to reach the minimum statistical percentage needed to perform chi square test and assess the association between smoking and other variables. Statistical tests were applied where appropriate. Logistic regression was conducted to adjust for possible confounders including smoking.
age, disease duration, comorbidities, family history of a rheumatoid disease, ANA, treatment agents and disease activity and quality of life assessment tools.

Results: A total of 863 RA male patients were studied with a mean age of 53.9±12.5 years and a mean disease duration 7.3±5.5 years, 652 (75.6%) had positive RF and 624 (72.3%) had positive ACPA. 431 (50%) had at least one comorbidity, 640 (74.2%) were on conventional disease modifying agents (cDMARDs) and 223 (25.8%) were on biologic therapy. 183 (21.2%) were smokers.

Conclusion: Smokers have a higher risk of expressing a positive RF and a positive ACPA in a male population. Smoking should be considered as a possible risk factor for RA and efforts should be done to educate the population to cease smoking to possibly lower that risk.

References:

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**AB0178**

PERIARTICULAR OSTEOPHYTE FORMATION PROTECTS AGAINST TOTAL KNEE ARTHROPLASTY IN RHEUMATOID ARTHRITIS PATIENTS WITH ADVANCED JOINT DAMAGE

S. Asael, N. Takahashi, K. Terabe, T. Kojima, N. Ishiguro, Nagoya University, Graduate School of Medicine, Department of Orthopedic Surgery, Nagoya, Japan

Background: New medications including biologics and aggressive treatment strategies can halt the inflammatory and destructive disease processes in patients with rheumatoid arthritis (RA), and in some cases repair damaged joints. In the process of damaged joint repair, periarticular osteophyte formation might be detected radiographically (1). However, little is known about the clinical and functional role of osteophyte formation in RA joints. Total joint arthroplasty, a common procedure for treating damaged large joints, can serve as a surrogate for the long-term outcome of large joint destruction in patients with RA.

Objectives: To determine the influence of periarticular osteophyte formation on the incidence of total knee arthroplasty (TKA) in patients with RA.

Methods: This retrospective longitudinal study used data from a registry of patients with RA starting biologics. A flow chart summarizing the study design is shown in Figure 1. A total of 130 symptomatic (tender and/or swollen) knee joints in 80 patients were studied with a median follow-up of 12 years. All data were analyzed using the knee joint as the statistical unit of analysis. The cumulative incidences of TKA were estimated using Kaplan-Meier curves, and compared according to the presence or absence of osteophyte on plain anteroposterior radiograph (osteophyte (+)/-), and the extent of advanced joint damage as defined by Larsen’s grading system (0-II vs. III-V).

Results: Baseline characteristics of all subjects included in this study are shown in Table 1. A total of 42 knees underwent TKA during the follow-up period. There was no significant difference in the cumulative incidence of TKA between the osteophyte (+) and osteophyte (-) groups (31% vs. 34% at 10 years, P=0.718) (Fig. 2A). The cumulative incidence of TKA was significantly higher for the Larsen grade III-V group compared to the Larsen grade 0-II group (56% vs. 10% at 10 years, P<0.001) (Fig. 2B). While no significant difference was observed in the cumulative incidence of TKA between the osteophyte (+) and osteophyte (-) groups in the Larsen grade 0-II group (9% vs. 10% at 10 years, P=0.774) (Fig. 2C), the cumulative incidence of TKA was significantly lower for the osteophyte (-) group compared to the osteophyte (+) group in the Larsen grade III-V group (38% vs. 74% at 10 years, P=0.010) (Fig. 2D). Multivariate analysis using Cox proportional hazards models revealed that older age (hazard ratio (HR): 1.04