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 simple 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 prognosis 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 – VSG, JADAS 27 – PCR 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 JADI. 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 RFnegative 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. At the time of the study, 84% of patients were in remission (Wallace criteria). Mean of JADAS 27-VSG, JADAS 27-PCR and cJADAS were 3.5 (3.1), 3.7 (5.1), and 3.7 (5.5), respectively. Mean long-term damage scores were 0.48 (1.1) for JADI-A and 0 for JADI-E. Mean levels of Treg cells in PB were 2.11% (2.1). 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 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=0.884 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

AB0175 INNOVATIVE PREPARATION OF CURCUMIN NANOPARTICLES TO IMPROVE ANTI-INFLAMMATORY EFFECT IN RHEUMATIC DISEASE

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Background: Curcumin (Cur) as a natural compound can be used in the wide spectrum of healthy functions and pharmacological activities [1-4]. It shows great promise for medication of various pro-inflammatory chronic illnesses [5]. In this study, we evaluate the ability of poly(lactic-co-glycolide)(PLGA) and different grades of PVA (polyvinyl alcohol) and lecinthin as a drug delivery system for poorly soluble Cur.

Objectives: The goal of this study was to prepare and characterize Cur encapsulated PLGA and different grades of PVA and lecinthin as an efficient nanocarrier for improve anti-inflammatory effect in rheumatic disease.

Methods: The PLGA nanoparticles were formulated and then characterized for percent yield, encapsulation efficiency, surface morphology, and in vitro drug release profiles. At first, 6mg of Cur was added to the organic phase including 24mlg of polymer dissolved in 5ml of dichloromethane to constitute 1:4 (drug-to-polymer) ratios. Then, a mixture of PVA-lecinthin (at about 5 cc) was added to maintain the stability of double emulsion droplets. The emulsion was continuously stirred at 300rpm for 24 hours (at temperature of 37.5°C) to evaporate the solvent, leaving behind the colloidal suspension of the drug-encapsulated nanoparticle in aqueous phase. The encapsulation of Cur into PLGA was characterized by Fourier transform infrared spectroscopy (FT-IR) and Transmission electron microscopy (TEM).

Results: Our studies achieved the successful formation of smooth surface and spherical shape Cur encapsulated into PLGA nanoparticles by the TEM image confirmed. The particle size distribution demonstrated a range of 30nm to 100nm, with the mean particle size being 45nm. FTIR study implies successful loading of Cur into the nanoparticles. We show high drug-loading efficiency about 98 ± 0.5% for 6% of Cur weight in total ingredients weight of PLGA (w/w). It was also seen that a slower sustained release of 10% CUR in 48 hours is observed with biocompatible PLGA in phosphate buffered saline (pH = 7.4). The MTT assay of the Cur-PLGA exhibited no cytotoxic effect on Normal mouse fibroblast cells (L-929) cell line. IC50 of Cur –PLGA increased 99.5% against Cur nanoparticles (33.67 ± 0.62 µM) (P < 0.05).

Conclusion: In this study, we constructed a novel preparation of curcumin nanoparticles with PLGA and different grades of PVA (polyvinyl alcohol) and lecinthin to improve the bioavailability of CUR and PLGA exhibited no cytotoxic effect on L-929 cell line.

References: In this study, we constructed a novel preparation of curcumin nanoparticles with PLGA and different grades of PVA (polyvinyl alcohol) and lecinthin to improve the bioavailability of CUR and PLGA exhibited no cytotoxic effect on L-929 cell line.

Disclosure of Interests: None declared

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12. Rheumatoid arthritis - prognosis, predictors and outcome
age, disease duration, comorbidities, family history of a rheumatoid arthritis, ANA, treatment agents and disease activity and quality of life assessment tools.

Results: A total of 863 RA male patients were studied with an age of 53.9±15.5 years and a mean disease duration 73±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. After adjustment of other factors, logistic regression showed that smokers were significantly different than non-smokers in terms of a positive ACPA (β=0.201, p=0.019, odds=1.017) and a positive RF (β=0.804, p=0.019, odds=2.517).

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:

Discussion of Interests: Rola Hassan Grant/research support from: Pfizer pharmaceuticals, Mohamed Cheikh Grant/research support from: Pfizer pharmaceuticals, Hanan Faruqui Grant/research support from: Pfizer pharmaceuticals, Reem AlQura Grant/research support from: Pfizer pharmaceuticals, Ayman Eissa Grant/research support from: Pfizer pharmaceuticals, Aoua Alhazmi Grant/research support from: Pfizer pharmaceuticals, Nahid Janoudi Grant/research support from: Pfizer pharmaceuticals DOI: 10.1136/annrheumdis-2020-eular.4708

AB0178 PERIARTICULAR OSTEOPHYTE FORMATION PROTECTS AGAINST TOTAL KNEE ARTHROPLASTY IN RHEUMATOID ARTHRITIS PATIENTS WITH ADVANCED JOINT DAMAGE

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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