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 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, 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 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 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. 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 3.6 (5.1), 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% (1.1). 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 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 ($p=0.984$ 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.

Variables	r	p value
CRP (mg/dl)	-0.24	0.099
ESR (mm/hour)	-0.15	0.314
VAS-disease activity (patient / parents)	-0.28	0.049
VAS-disease activity (physician)	-0.25	0.081
JADAS10 (VSG)	-0.27	0.064
JADAS27 (VSG)	-0.27	0.064
JADAS71 (VSG)	-0.27	0.064
JADAS10 (PCR)	-0.28	0.054
JADAS27 (PCR)	-0.28	0.054
JADAS71 (PCR)	-0.28	0.054
c JADAS10	-0.26	0.065
Disability (JAFA – JAMAR)	-0.34	0.021
Quality of life (PRQL – JAMAR)	-0.39	0.007
Quality of life physical (PRQLPh – JAMAR)	-0.46	0.001
Quality of life psychosocial (PRQLPs-JAMAR)	-0.21	0.156
Morning Stiffness	-0.27	0.066

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(lactide-co-glycolide)(PLGA) and different grades of PVA (polyvinyl alcohol) and lecithin 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 lecithin as an efficient nanocarrier for improve anti-inflammatory effect in rheumatic disease

Methods: The PLGA nanospheres 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 24mg of polymer dissolved in 5mL of dichloromethane to constitute 1:4 (drug-to-polymer) ratios. Then, a mixture of PVA-lecithin (at about 5 cc) was added to maintain the stability of double emulsion droplets. The emulsion was continuously stirred at 300 rpm 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 $98 \pm 0.5\%$ 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 ($33.57 \pm 0.62 \mu\text{M}$) ($P < 0.05$).

Conclusion: In this study, we constructed a novel preparation of curcumin nanoparticles with PLGA and different grades of PVA (polyvinyl alcohol) and lecithin 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 lecithin 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

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

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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