



# **Abstracts of the 15<sup>th</sup> Annual Congress of Iranian Rheumatology Association**

**October 2021  
Tehran**

## Relationship between microbiota, superantigens and rheumatoid arthritis

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**Aim:** The purpose of this study was to assay the effect of the super antigens on the induction of RA diagnostic biomarkers concentration in Rat

**Methods:** in this study, 100 micrograms of the purified super antigens (ultrafiltration: Amicon Ultra Centrifugal Filter Device) were injected intraperitoneal and intrasynovial into separate rat groups. In time course blood collection and Diagnostic biomarker was measured. The results were categorized and analyzed by ANOVA.

**Results:** The results showed that 100 µg of super antigen (toxin) injected in to intra-articular and intra- peritoneal induced the production of RF. So such that in 40 days of challenges the induction was start and after 50 days the detectable concentration of was reached to 3.4 mg/ml. one-way ANOVA analysis was shown the difference between the groups and with a significant level for groups ( $P \leq 0.001$ ) and for the intervals of the effect of super antigen ( $P \leq 0.075$ ), respectively.

**Conclusion:** The results indicate that the exposure of super antigens of in the rats induced the production RA diagnostic biomarkers. This finding may provide new discussion for the Seronegative patients, and also tools for preventing and control inflammatory diseases, including rheumatoid arthritis.

**Keywords:** Rheumatoid arthritis; Super antigen C; *Staphylococcus aureus*; Rheumatoid factor

## Serum and synovial fluid markers of *Helicobacter Pylori* infection in rheumatoid arthritis and osteoarthritis patients

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**Aim:** This study was designed to compare serum and synovial fluid markers of Herpes simplex virus (HSV) and *Helicobacter pylori* of RA and osteoarthritis (OA) patients.

**Methods:** This retrospective case-control study was conducted on two hundred patients with OA and RA who referred to Rheumatic Diseases Research Center (RDRC) affiliated to Mashhad University of Medical Sciences, Mashhad, Iran, from March 2015 to 2016. Synovial fluid was obtained from all individuals. Two years later, RA and OA patient attended a follow-up session to collect blood samples for serum markers of these two infectious agents.

**Results:** Twenty-five patients (96.15%) in RA and 23 individuals (92%) in OA group had positive serum IgG antibody for HSV. As for *Helicobacter pylori*, 13 individuals (50%) in RA and 12 individuals (48%) had positive serum IgG antibody ( $P = 0.66$ ). In addition, 9 (34.6%) and 8 (30.8%) in RA and 10 (40%) and 3 (12%) in OA group had positive serum IgA and IgM antibodies for *Helicobacter pylori*, respectively ( $P=0.89$  and  $P = 0.13$ ). Collected fluid samples were negative for both *Helicobacter pylori* and HSV1 and 2 DNA particles in all individuals.

**Conclusion:** Based on the results of the current study, the possibility of infection with these two agents serving as a contributing factor for the development of RA is negligible.

**Keywords:** Rheumatoid arthritis; Osteoarthritis; Herpes simplex virus; *Helicobacter pylori*; Synovial Fluid

## Quality of life (QoL) in patients with systemic lupus erythematosus compared to healthy controls

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**Aims:** This study aimed to assess and compare the QoL of SLE patients with healthy individuals. Moreover, it was attempted to compare the QoL of SLE patients suffering from minor and major organ involvement with healthy individuals.

**Methods:** This cross-sectional study was conducted at the Rheumatic Diseases Research Center, Mashhad, Iran, from 2018 to 2019. In general, 280 participants were selected and randomly divided into two groups of case (n = 139) and control (n = 140). After obtaining the demographic characteristics of the general health, the groups were compared using a 36-item Short Form Survey (SF-36) and World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire.

**Results:** The mean QoL score was significantly lower in patients with SLE, compared to healthy controls ( $P < 0.001$ ). The total score of QoL was lower in patients with lung involvement, compared to healthy controls ( $P < 0.05$ ). Moreover, according to WHOQOL-BREF, the environment health was lower in patients with lung and skin involvement, compared to healthy controls ( $P = 0.01$ ). Furthermore, according to the results obtained from the SF-36 questionnaire, the total QoL status was lower in both patients with minor and major involved organ, compared to healthy controls ( $P < 0.05$ ). There was a significant difference between the patients with joint involvement and healthy control regarding QoL ( $P = 0.02$ ).

**Conclusion:** According to the obtained results, SLE can negatively alter QoL. The severity and activity of some disease including lung and joint were associated with reduced QoL.

**Keywords:** Health Status; Quality of Life; SF-36 questionnaire; Systemic Lupus Erythematosus; WHOQOL-BREF

## Higher circulating concentration of interleukin-38 in patients with knee osteoarthritis: Its association with disease severity

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**Aim:** Evidence showed that chronic inflammatory and immunopathological responses play a pivotal role in the development of osteoarthritis (OA). Interleukin-38 (IL-38) as a novel antiinflammatory cytokine with influential modulatory properties on both innate and adaptive immune responses can be involved in the pathogenesis of OA. Therefore, this study aimed to measure the serum level of IL-38 in OA patients to clarify the positive or negative association with disease and its severity.

**Methods:** Blood specimens were collected from two groups including 23 newly-diagnosed OA patients and 22 healthy sex and age-matched subjects as a control group. Serum IL-38 quantities were measured using enzyme-linked immunosorbent assay (ELISA).

**Results:** Significantly higher IL-38 levels were detected in OA patients in comparison with the healthy group ( $265.78 \pm 41.27$  pg/mL vs  $44.23 \pm 6.04$  pg/mL,  $P = 0.0001$ ). The IL-38 concentration in OA patients with Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores  $> 40$  and in OA patients with visual analog scale (VAS) scores  $> 5$  were higher than those with WOMAC scores  $\leq 25$  ( $P = 0.05$ ).

**Conclusion:** According to our findings, WOMAC, VAS, and BMI indices may influence the IL-38 serum levels in OA patients and it may be elevated in OA patients to modulate inflammatory responses in a compensatory manner. The patients with OA, especially those with more severe disease express higher serum amounts of IL-38. Accordingly, IL-38 may be considered as a valuable marker for OA.

**Keywords:** Articular cartilage; IL-38 protein; Inflammation mediators; Joint diseases; Osteoarthritis

## The S100 proteins expression in newly diagnosed systemic lupus erythematosus patients: Can they be potential diagnostic biomarkers?

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**Aim:** The S100 proteins are a unique class of calcium-binding proteins that play an essential role in promoting the inflammatory and anti-inflammatory responses under normal and pathological conditions such as SLE. The present research aimed to measure mRNA expression of S100A4, S100A8, S100A9, and S100A12 as target genes and evaluation of their diagnostic potentiality in the SLE patients.

**Methods:** Twenty-three newly diagnosed SLE patients selected by a rheumatologist were enrolled as well as 30 healthy age and sex-matched subjects. Following peripheral blood collection from the subjects, the mRNA level of target genes was measured in isolated leukocytes by the real-time polymerase chain reaction (RT-PCR).

**Results:** The findings of this study showed that the mRNA level of target genes was higher in SLE patients compared to healthy subjects; however, only gene expression of S100A12 raised significantly. Moreover, the results of the receiver operating characteristics (ROC) curve showed that among the studied genes, S100A12 was highly sensitive to the diagnosis of patients with SLE from the healthy subjects (specificity: 0.80, sensitivity: 0.75, area under the curve (AUC): 0.79). On the other hand, we observe that there was no significant correlation between the expression of target genes and disease activity.

**Conclusion:** Regarding the findings of this study, it can be concluded that S100A12 might be involved in SLE pathogenesis. Also, this molecule may be considered as a potential biomarker candidate for the early detection of SLE. However, further studies are needed to confirm this claim.

**Keywords:** S100 proteins; Systemic lupus erythematosus; Autoimmune disease

## Assessing the expression of immunosuppressive cytokines in the newly diagnosed systemic lupus erythematosus Patients: A focus on B Cells

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**Aim:** The immunosuppressive effects of regulatory B-cells and their cytokines on immune responses in autoimmune disorders, mainly SLE, have been recently established. The purpose has been the exploration of the expressions of cytokines produced by B cells in newly diagnosed SLE patients.

**Methods:** A total number of 23 new cases of SLE patients and 30 normal-age and sex-matched subjects were enrolled in this study. Peripheral blood samples were collected. The serum levels of IL-10, TGF $\beta$ , and IL-35 were subsequently measured via ELISA as well as expressions of IL-10, TGF- $\beta$ , and IL-35 (EBI3 or IL-12p35 (programmed death-ligand 1 (PD-L1 or CD274), and Fas ligand (FasL or CD178) examined in isolated B-cells using the real-time polymerase chain reaction (RT-PCR) technique.

**Results:** The findings demonstrated that the gene expression of IL-10, TGF- $\beta$ , IL-35, PD-L1, and FasL was significantly up-regulated in SLE patients compared to healthy subjects ( $P < 0.05$ ). Additionally, the results revealed that serum levels of IL-10, TGF- $\beta$ , IL-35, PD-L1 were remarkably increased in patients with SLE compared to healthy subjects ( $P < 0.0001$ ). However, serum levels of IL-10 and TGF- $\beta$  decreased significantly with increasing SLEDAI score in studied patients ( $P < 0.05$ ).

**Conclusion:** The release of anti-inflammatory cytokines, particularly IL-10 and TGF- $\beta$ , might inhibit immune responses and autoreactive immune cells in a compensatory manner in SLE patients with mild to moderate disease activity.

**Keywords:** Regulatory B-cells (Bregs); Systemic lupus erythematosus (SLE); Anti-inflammatory cytokine



## Can Abnormal lipids be considered as the risk factors for systemic lupus erythematosus?

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**Aim:** Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that involves vital organs of the body. Studies showed that abnormal lipids maybe involved in the pathogenesis of SLE. Hence, the aim of this study was to evaluate lipid profile in lupus patients.

**Methods:** All the patients referred to Rafsanjan rheumatology clinic from October 2015 to September 2018 have been evaluated. The data for systematic lupus erythematosus disease activity (SLEDAI) index and demographic information of all the patients have been entered in a checklist made by the researchers and serum lipid profile has been extracted from lab results found in patient's history file.

**Results:** the mean and standard deviation of SLEDAI index in evaluated patients was  $13.8 \pm 5.9$ . Age had a significant positive effect on cholesterol levels ( $r = 0.224$  and  $P = 0.009$ ) and LDL ( $r = 0.256$  and  $P = 0.003$ ) had a significant negative association with HDL ( $r = -0.489$  and  $P < 0.018$ ). Lipid profile in patients with different levels of education showed no significant difference ( $P > 0.05$ ). In patients who have been recently diagnosed, SLEDAI index had a significant positive association with cholesterol ( $r = 0.489$  and  $P = 0.002$ ) and LDL levels ( $r = 0.418$  and  $P = 0.009$ ) and also a significant negative correlation with HDL levels ( $r = -0.381$  and  $P < 0.018$ ). No significant correlation was observed between blood triglyceride level and SLEDAI.

**Conclusion:** According to the findings of this study there is a significant association between abnormal lipids and SLEDAI and abnormal lipids are common in patients with SLE.

**Keywords:** Systematic lupus erythematosus; Systematic lupus erythematosus Disease Activity index; Lipid profile



## Assessment of serum vitamin D level and its relationship with disease activity in adult patients with Systemic Lupus Erythematosus (SLE)

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**Aim:** Vitamin D level varies according to the geographic location. This study was conducted to evaluate Vitamin D level in the serum samples of Systemic lupus erythematosus (SLE) patients from Iranian population and determine its association with SLE disease activity index (SLEDAI), sun exposure, smoking, photosensitivity, sun protector cream use, and drug regimen.

**Methods:** The patient's data (200) were obtained using a questionnaire. ELISA technique was used to determine Vitamin D level in the serum samples of the patients.

**Results:** The study population was comprised of 27 (13.5%) males and 173 (86.5%) females, with the mean age of  $38.46 \pm 13.24$  years. Serum level of Vitamin D was  $13.62 \pm 3.22$  ng/ml in the patients. Vitamin D deficiency was observed in 104 (52%) patients. There was a statistically positive correlation between vitamin D level and duration of sun exposure ( $CC = 0.57$ ,  $P = 0.004$ ). A statistically significant negative correlation was seen between vitamin D level and SLEDAI ( $CC = -0.41$ ,  $P = 0.013$ ). Vitamin D level was significantly ( $P = 0.030$ ) lower in the SLE patients with photosensitivity. SLE patients using sun protector cream had significantly ( $P = 0.002$ ) lower level of Vitamin D. Patients receiving glucocorticoid drugs had significantly ( $P = 0.001$ ) lower levels of Vitamin D in comparison to the patients not receiving glucocorticoids.

**Conclusions:** Vitamin D is involved in the disease activity of SLE patients. It is important to include vitamin D supplementation in drug regimen of SLE patients, especially when it includes glucocorticoids.

## Investigation of demographic and clinical factors predictive of complete remission in rheumatoid arthritis

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**Background:** Rheumatoid arthritis is the most common chronic systemic inflammatory and autoimmune disease. Considering that one of the important goals of treatment of this disease is to achieve remission of patients, this study was designed to identify the factors associated with the remission of this disease.

**Materials and Methods:** The present study is a descriptive-analytic retrospective cohort study. In this study, the cases of 150 patients with rheumatoid arthritis who have been followed up for at least one year were reviewed by several rheumatologists in Tabriz and Kashan centers.

**Results:** Findings of this study show that the number of women (75.5%) was much higher than men and the mean age of patients was  $50.91 \pm 11.51$  years. With increasing one year of patients' age and the duration of the disease, the chance of poor remission in them increases 1.102 and 1.010 times, respectively; The chance of a short-term remission among patients in whom the disease activity was severe at the beginning of the visit was 2.81 and 2.58, respectively, in patients in whom the disease activity was mild or moderate; Also, the chance of a poor remission among patients on monotherapy is 8.77 times higher than in patients on combination therapy.

**Conclusion:** Increasing the age and duration of the disease, the severity of the disease activity at the beginning of the visit and the use of a monotherapy regimen at the beginning of treatment increase the chances of a poor remission in patients.

**Keywords:** Rheumatoid arthritis; Long-term prognosis; Remission

## Study of demographic, clinical characteristics and long-term follow-up of adult onset Still's disease

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**Introduction:** Adult onset still's disease (AOSD) is a rare disease, but little is known about its prevalence, clinical manifestations and treatment outcomes. The aim of this study was to evaluate the demographic characteristics, clinical signs and long-term follow-up results of AOSD.

**Materials and Methods:** In this retrospective study, the records of patients referred to Kashan Rheumatology Clinic with AOSD who were diagnosed based on yamaguchi criteria were reviewed and the relevant information was entered in the checklist. Then, the data were analyzed by SPSS software version 22.

**Results:** The files of 58 patients (63.8% female) with a mean age of 38.22 years were reviewed. Fever and arthritis were the most common clinical symptoms with 93.1%, and increased ESR (94.8%) and ferritin (91.4%) were the most common laboratory findings. The frequency of delay in initial treatment was 17.2%, commitment to treatment 81%, long-term remission 96.6% and experience of at least one recurrence was 51.7%. 13 patients (22.4%) had a poor prognosis and 45 patients (77.6%) had a normal prognosis. Gender, age, BMI, age of illness onset, duration of illness, antiTNF use, dose of prednisolone, delay in initial treatment, commitment to treatment, type of treatment regimen, protocol destiny and at least once recurrence experience had no significant relationship with patients' prognosis ( $P > 0.05$ ).

**Conclusion:** In the present study, the studied variables were not related to patients' prognosis, which is probably due to the small study population and larger studies are needed in this regard.

**Keywords:** Adult onset still's disease (AOSD); Follow-up, Clinical characteristic

## N-acetylcysteine is not effective in the outcome of patients with rheumatoid arthritis

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**Introduction:** Rheumatoid arthritis (RA) is an inflammatory disease that affects various systems. There is various evidence that RA is associated with oxidative stress. Since evidence of the antioxidant and anti-inflammatory effects of N-acetylcysteine has been reported, this study was designed to investigate the effect of N-acetylcysteine supplementation on clinical and laboratory outcome of patients with RA.

**Materials and Methods:** The present study was conducted as a double-blind randomized clinical trial. 74 patients with active form of rheumatoid arthritis were randomly allocated to N-acetylcysteine (1200 mg daily) or placebo group and were treated and followed for 12 weeks.

**Results:** Finally, the data of 70 patients including 34 patients in the N-acetylcysteine group and 36 patients in the placebo group were analyzed. After 12 weeks, patients were evaluated for clinical symptoms, inflammatory factors and oxidative stress biomarkers and it was observed that N-acetylcysteine significantly increased the level of high-density lipoprotein (HDL) ( $P < 0.001$ ) and also decreased nitric oxide ( $P < 0.001$ ) and fasting blood sugar (FBS) ( $P < 0.001$ ) compared to the placebo group.

**Conclusion:** N-acetylcysteine can alter the serum levels of some of inflammatory and oxidative biomarkers, but had no effect on clinical manifestation and disease activity in patients with rheumatoid arthritis. Thus it seems that this drug can not replace conventional drugs, but it can be used as adjunctive therapy.

**Keywords:** Rheumatoid arthritis; N-acetylcysteine; Oxidative stress; Inflammatory factors; Disease activity

## Clinical course, CT severity score and prognosis of COVID-19 in patients with rheumatoid arthritis

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**Objective:** In this study we report the hospitalization and death rates in patients with rheumatoid arthritis disease and PCR confirmed COVID-19, and to assess the association between rheumatoid arthritis disease and pneumonia severity in chest CT scan.

**Methods:** Demographic, historical, clinical, laboratory and chest CT imaging data and final infection outcomes of 107 eligible rheumatoid arthritis patients affected with COVID-19 (confirmed with RT-PCR test) were blindly and independently extracted from questionnaire. Patients were stratified based on their semi-quantitative CT severity scores (CT-ss) and rheumatoid arthritis with CT-ss was evaluated.

**Results:** A total of 107 RT-PCR confirmed patients with rheumatic disease were investigated in the study. Hospitalization and death rate were calculated as 39.2% and 4.6% respectively, and hospitalized/deceased patients were more likely to have severe and extensive lung disease in chest CT scan. Older participants, obese patients, diabetic patients were associated with higher CT-ss ( $P$ : 0.001, 0.022, 0.021. respectively). Patients presenting with fever or dyspnea on admission, were more likely to end up with a more severe pneumonia ( $P$ : 0.034, 0.010, respectively). Higher CRP was predictive of higher CT-ss ( $P$ : 0.001). Oral prednisolone chronic usage was protective of severe COVID-19 ( $P$ : 0.005), but administration dose was of no significant influence.

**Conclusion:** In rheumatoid arthritis, COVID-19 pneumonia severity was not significantly different for patients with different primary diseases, but it was worse in those receiving Oral prednisolone but not in patients on hydroxychloroquine or TNFi.

**Keywords:** Rheumatoid Arthritis; COVID-19; Pneumonia; Chest CT scan

## Evaluation of factors affecting the prognosis of Covid-19 in patients with Systemic lupus erythematosus

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**Introduction:** Covid-19 is caused by the SARS-CoV-2 virus, which was first reported in December 2019 in Wuhan, China. Systemic lupus erythematosus is an autoimmune disorder and multisystem disease. This study was performed to evaluate the factors affecting the prognosis of Covid-19 in patients with systemic lupus erythematosus.

**Materials and Methods:** This study was performed on 58 systemic lupus erythematosus patients with Covid-19 with PCR positive who referred to rheumatology clinic in Kashan from May 2020 to september 2021. The collected data were analyzed by SPSS software version 16 using one-way analysis of variance, mixed analysis of variance and independent t-test.

**Results:** The results showed the chance of poor prognosis among patients with lung disease is 5.32 times higher than patients without lung disease; and among the patients who were in the active phase of rheumatic disease at the time of Covid-19, it is 5.25 times more than the patients who were in the inactive phase of the disease and among the patients whose CT findings were moderate to severe was 24.54 times higher than patients whose CT findings were mild and normal.

**Conclusion:** The results of the present study showed that the prognosis of Covid-19 in systemic lupus erythematosus patients in people with underlying lung disease, patients with active phase of rheumatic disease and in those with moderate to severe involvement in CT scan of the lungs is poor.

**Keywords:** Systemic Lupus Erythematosus; Covid-19

## The effect of zinc supplementation on clinical outcomes of patients with spine Brucellosis

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**Background:** Increased oxidative stress and inflammatory factors may play pivotal roles in pathogenesis of brucellosis. This study was carried out to evaluate the effects of zinc supplementation in patients with spine Brucellosis.

**Methods:** This randomized, double-blind, placebo-controlled trial was conducted among 40 patients with spine brucellosis. Subjects were randomly allocated into two groups to receive either 220 mg zinc sulfate (n = 20) or placebo (n=20) for 6 weeks. Blood samples were obtained at baseline and after the 6-week intervention to determine outcomes.

**Results:** The difference between zinc group and placebo group for fever duration ( $4.9 \pm 1.5$  vs.  $6.2 \pm 2.3$  days,  $P = 0.005$ ), and length of musculoskeletal pain ( $14.2 \pm 2.1$  vs.  $18 \pm 3.6$  days,  $P < 0.002$ ) was statistically significant. After the 6-week intervention, compared with the placebo, zinc supplementation resulted in significant increases in total antioxidant capacity (TAC) ( $710.7 \pm 166.7$  vs.  $452.9 \pm 72.5$  mmol/lit,  $P = 0.001$ ). Supplementation with zinc had no significant impact on other outcomes.

**Conclusion:** Zinc supplementation among patients with spine brucellosis had beneficial effects on clinical outcomes and body antioxidative defense system.

**Keywords:** Zinc supplementation; Clinical outcome; Spine Brucellosis



## Evaluation of serum IL-17 and TGF- $\beta$ levels in patients with Brucella spondylodiscitis before and after Treatment: A case-control Study

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**Background:** Brucellosis is a zoonotic disease in humans and animals and public health problem throughout the world. Measure of changes in levels of inflammatory cytokines is a good marker for the diagnosis of infectious diseases from non-infectious in patients. The aim of this study was to evaluate the relationship between serum levels of interleukin-17 (IL17 ) and transforming growth factor beta (TGF- $\beta$ ) in brucella spondylodiscitis.

**Methods:** The present case-control study was carried out on 35 patients with brucella spondylodiscitis and 35 matched healthy controls. Serum levels of inflammatory cytokines were measured by ELISA method and independent student t test was used for comparison their serum levels in brucella spondylodiscitis and healthy group. Paired samples t-test was used for comparison of serum cytokine levels before and after treatment.

**Results:** The serum level of TGF $\beta$  was significantly lower in the case group compared with that in the control group ( $91.11 \pm 23.34$  vs.  $124.63 \pm 22.28$  pg/mL,  $P < 0.001$ ) and serum IL-17 level was significantly higher in the case group ( $82.74 \pm 24.54$  vs.  $24.92 \pm 15.85$  pg/ml,  $P < 0.001$ ). After treatment, serum IL-17 levels were significantly decreased in the case group.

**Conclusion:** The results showed that serum IL-17 levels decreased significantly whereas serum TGF- $\beta$  levels increased significantly in brucella spondylodiscitis patients. It is recommended that the serum levels of these inflammatory cytokines can be used as the markers for the diagnosis of brucella spondylodiscitis.

**Keywords:** Brucella spondylodiscitis, interleukin-17 (IL-17); Transforming growth factor beta (TGF- $\beta$ )

## Salivary levels of Human Neutrophil Peptide (HNP) 1-3 in patients with recurrent aphthous stomatitis and Behçet's Disease: A cross-Sectional study in Iran

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**Aim:** Recurrent oral ulcers constitute the most common complaint of patients with Behçet's disease (BD) and recurrent aphthous stomatitis (RAS). Enhanced innate immune response and neutrophilic activity might be a possible etiopathogenesis of BD. This study aimed to determine the significance of salivary HNP 1-3 in BD and RAS patients and detect their correlation with different clinical presentations, disease activity, and characteristics of oral ulcers.

**Methods:** This cross-sectional study included 25 BD patients and 25 RAS patients as well as 25 healthy participants. 5 cc of unstimulated saliva were collected and levels of HNP 1-3 were measured by ELISA. Other data were obtained through interviews, examination, and reviews of medical records. SPSS 25.0 was used to analyze the data.

**Results:** Salivary HNP 1-3 levels were not significantly different between the study groups ( $P = 0.282$ ). Duration of oral ulcers did not correlate with HNP 1-3 levels in RAS and BD patients ( $P > 0.05$ ). Also, BD patients with involvements other than oral ulcers were not found to have different levels of HNP 1-3 comparing to those who did not manifest these conditions.

**Conclusion:** The validity of HNP 1-3 to be used as a probable biological marker for evaluation, diagnosis, and estimation of disease activity in patients with BD and RAS is still questionable due to our results.

**Keywords:** Saliva; Human neutrophil peptide; HNP 1-3; Behçet's disease; Recurrent aphthous stomatitis

## Evaluation of correlation between azathioprine and methotrexate with response to treatment in patients with idiopathic granulomatous mastitis

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**Aim:** In recent years prevalence of idiopathic granulomatous mastitis (IGM) in women of child-bearing age is increasing.

**Methods:** This cohort study was performed on 52 patients with IGM s. After consent, patients did not respond to prednisolone (20 - 30 mg per day for 2 month) were included. Finally 25 in methotrexate and 27 in azathioprine group were entered. Demographic and clinical characteristics, ultrasound and pathology findings were recorded. Response to treatment was evaluated by repeated examination and clinical judgment by rheumatologist and ultrasound every 3 to 6 follow-ups.

**Results:** The results showed that patients with IGM in two groups did not have significant difference of response to treatment in third, sixth and eighteenth months ( $P < 0.05$ ). While response showed a significant difference in treatment in twelfth month ( $P < 0.05$ ). There isn't significant difference in type of biopsy, number of surgical and abscess discharges ( $P < 0.05$ ). The results also showed that duration of treatment in patients with IGM in two groups receiving azathioprine and methotrexate did not show a significant difference in terms of age and number of lesions ( $P < 0.05$ ).

**Conclusion:** In study, response to prednisolone with azathioprine is higher than methotrexate especially in 12 month. Therefore we can use Azathioprine in equal of methotrexate in treatment of IGM.

**Keywords:** Azathioprine; Methotrexate; Response to treatment; Idiopathic granulomatous mastitis

## Clinical characteristics associated with hospitalization and mortality of Coronavirus Disease-2019 (COVID-19) infection in rheumatic patients: A cross-sectional study from Iran

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**Aim:** This study was designed to describe COVID-19 infection in rheumatic patients and to investigate possible risk factors for hospital admission and death related to COVID-19 infection.

**Method:** In this observational cross-sectional study, we investigated patients under follow-up in Kermanshah rheumatology units in a 6-month period in 2020. COVID-19 confirmed cases were collected. The following data were obtained: age, sex, rheumatic disease diagnosis, rheumatic disease medication. Rheumatic patients were divided into two groups of hospitalized and non-hospitalized. Data from two groups were compared

**Result:** 221 patients were enrolled in this study. Of these, 38 patients (17.19%) were hospitalized and 9 patients (4.07%) died. No significant difference was observed between hospitalized and non-hospitalized patients except for vasculitis and prior use of Janus kinase inhibitors (Tofacitinib). A greater rate of hospitalized patients had vasculitis (6(15.79%) vs 1(0.55%),  $P < 0.0001$ ). A greater rate of them were on Tofacitinib therapy (2(1.09%) vs 0,  $P = 0.03$ ). A greater rate of died patients used Tofacitinib (2 (22.22%) vs 0,  $P = 0.001$ ) and Mycophenolate Mofetil (4 (44.44%) vs 23 (10.85%),  $P = 0.014$ ).

**Conclusion:** Hospitalization and mortality rate in rheumatic patients is comparable to the general population. We observed a higher risk for hospitalization just in vasculitis patients and users of Tofacitinib, and a higher risk for mortality just in users of Mycophenolate Mofetil and Tofacitinib, though this finding should be interpreted with caution due to the small size of these subgroup. In conclusion most rheumatic patients does not seem to be at higher risk for sever COVID-

**Keywords:** Rheumatic diseases, COVID-19, SARS COV-2 infection, Hospitalization, Iran

## COVID-19 reinfection in rheumatic patients: Clinical characteristics and risk factors

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**Aim:** This survey was designed to study COVID-19 reinfection in rheumatic patients and to find possible risk factors for reinfection related to rheumatic disease or their medications.

**Method:** In this cross-sectional survey, rheumatic patients attending rheumatology clinics were interviewed to find rheumatic patients who had been infected by COVID-19 more than one time. A group of patients who had been infected by COVID-19 just for one time and another group who had never been infected by COVID-19, were considered as control group. Demographic and clinical characteristics of the three groups were compared.

**Result:** We found 12 patients (11 females, mean age 45) who have been infected by COVID-19 infection two times. RA and SPA were the commonest type of diseases (33.33%) and prednisolone was the most commonly used type of drug among these patients (75%). The mean interval between first and second infections was 6.29 months. We detected no significant differences for age, sex, type of rheumatologic disease, medications of rheumatologic disease and comorbidities between our three group.

**Conclusion:** Neither the type of rheumatic disease, nor the type of medication (prednisolone, cDMARDs and bDMARDs) used to treat it, is a risk factor for COVID-19 reinfection.

**Keywords:** COVID-19 reinfection; Rheumatic diseases; Anti-rheumatic medications

## Single nucleotide polymorphism rs6445975 in the *PXK* gene is correlated with susceptibility and clinical characteristics of systemic lupus erythematosus

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**Aim:** Recently, genome-wide association studies (GWAS) have discovered several single nucleotide polymorphisms (SNPs) and loci associated with the risk of systemic lupus erythematosus (SLE). rs6445975 (T > G) polymorphism in the *PXK* gene is one of these loci. However, there was an inconsistency between the results of replicative studies on European and Asia ancestry. In the present study, for the first time, we intended to assess the possible association between rs6445975 polymorphism with SLE risk in the Iranian population.

**Methods:** Genotype and allele distribution of rs6445975 polymorphism were investigated in 110 patients with SLE and 115 healthy controls via real-time PCR high resolution melting method (HRM).

**Results:** According to our data, GG and TG genotypes, but not TT genotype, were associated with increased risk of SLE (GG vs TT; OR = 7.538; 95%CI [3.47, 17.066] and TG vs TT; OR = 2.21; 95%CI [1.06, 4.72]). Inheritance analysis revealed that TG + GG was correlated with the increased risk of SLE disease in the dominant model (OR=3.928; 95%CI [2.056, 7.74]). Moreover, subjects with the G allele were more frequently affected with SLE than individuals with the T allele (OR = 3.55; 95%CI [2.37, 5.36]). On the other hand, the G allele in patients was correlated with serum concentration of CRP, ESR, anti-dsDNA antibody, C3, and C4 and presentation of some clinical manifestations such as kidney involvements and skin lesions ( $P < 0.05$ ).

**Conclusions:** Our findings suggest a substantial association between rs6445975 polymorphism in the *PXK* gene with susceptibility and clinical characteristics of SLE in the Iranian population.

**Keywords:** Systemic lupus erythematosus; *PXK* gene; Single nucleotide polymorphism; Autoimmune disease

## **IFI44L Gene promoter is differentially methylated in Iranian patients with systemic lupus erythematosus and rheumatoid arthritis.**

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**Aim:** Systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA) are multisystemic autoimmune diseases with multifactorial nature. Considering limitations of the current conventional serological tests for diagnosis of these diseases, researchers strive to find new and more valid biomarkers.

**Method:** The methylation level of interferon-induced protein 44-like (IFI44L) promoter was evaluated in 69 patients with SLE, 61 patients with RA, and 71 healthy subjects. Quantitative methylation of the promoter region of IFI44L gene was measured in DNA extracted from peripheral blood mononuclear cells (PBMCs) with methylation-quantification endonuclease-resistant DNA (MethyQESD) method.

**Results:** Our findings revealed a substantial hypomethylation of IFI44L promoter in SLE and RA patients compared with healthy volunteers (mean:  $60.36\% \pm 64.54\%$ ,  $47.59\% \pm 30.34\%$ , and  $89.17\% \pm 76.96\%$ , respectively;  $P_{SLEB} = 0.018$ ,  $P_{RA} < 0.001$ ). In comparison between SLE and RA patients with control group, IFI44L promoter methylation had a sensitivity of 84/06% and 93/65% and specificity of 32/39% and 29/58, respectively. The promoter methylation level was not meaningfully different between SLE and RA patients ( $P > 0.05$ ). Moreover, our analysis revealed that the methylation level of IFI44L promoter was not statistically significantly different between SLE disease activity and renal involvements ( $P > 0.05$ ). While RA patients with a higher concentration of CRP had a lower DNA methylation level ( $P = 0.012$ ).

**Conclusion:** The methylation level of IFI44L promoter was lower in PBMCs of Iranian patients with SLE and RA than that control group. Furthermore, DNA methylation level of IFI44L promoter had a negative correlation with RA disease activity. However, there was not a significant association between clinical characteristics of SLE.

**Keyword:** Systemic lupus erythematosus; Rheumatoid arthritis; IFI44L; DNA methylation



## Strong association of polymorphism in SPRED2 gene with disease susceptibility and clinical characteristics of rheumatoid arthritis in Iranian population

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**Aim:** Rheumatoid arthritis (RA) is a chronic, complex, common and heterogeneous autoimmune disease with multifactorial etiology. The high heritability of RA has been estimated from different studies. Recently, genome-wide association studies (GWAS) suggested a large number of single nucleotide polymorphisms (SNPs) loci affecting susceptibility to RA. The rs934734 polymorphism in *SPRED2* gene is one of these loci. Studies have shown that *SPRED2* gene is involved in the regulation of inflammatory response, leukocyte infiltration, and local chemokine production. In the current study, we evaluated the possible association between SNP rs934734 (intronic variant) in the *SPRED2* gene with RA risk in the Iranian population.

**Methods:** One hundred fourteen RA patients and 120 healthy counterparts were recruited in this case-control study to evaluate rs934734 genotypes using real-time PCR high resolution melting method (HRM).

**Results:** Logistic regression analysis demonstrates that GG and AG genotype compared with AA genotype increased the risk of RA (GG vs AA; OR= 4.61; 95%CI [2.21-9.35];  $P<0.001$  and AG vs AA; OR= 2.54; 95%CI [1.36-4.76];  $P=0.004$ ). Furthermore, subjects with allele G were more frequently affected with RA than subjects with A allele (OR= 2.33; 95%CI [1.61-3.38];  $P<0.001$ ). Besides, in the patient group, there was a significant correlation between erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) concentration with rs934734 polymorphism ( $P<0.05$ ).

**Conclusion:** Our findings suggests that rs934734 in *SPRED2* is a strong determinant for RA and clinicopathological characteristics of this disease.

**Keyword:** Rheumatoid arthritis; *SPRED2* gene; Autoimmune disorder; Single nucleotide polymorphisms

## Single nucleotide polymorphism rs6859219 (C > A) in the *ANKRD55* gene is associated with rheumatoid arthritis in the Iranian population.

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**Aim:** Rheumatoid arthritis (RA) has multifactorial etiology and numerous genetic and environmental factors have been related to an increased risk of RA. Recently, genome-wide association studies (GWAS) suggested a large number of single nucleotide polymorphisms (SNPs) loci affecting susceptibility to RA. One of these loci is rs6859219 (C > A), a functional polymorphism in the *ANKRD55* gene which was associated with the expression of *ANKRD55* and *IL6ST*. In the current study, we evaluated the possible association between rs6859219 (intronic variant) in the *ANKRD55* gene with RA risk in the Iranian population.

**Method:** A case-control study using 40 RA patients and healthy counterparts was undertaken in order to determine rs6859219 genotypes using real-time polymerase chain reaction high-resolution melting (HRM) method.

**Results:** There was a significant difference in the genotype and allele frequencies of rs6859219 between patients and controls ( $P < 0.001$ ). Logistic regression analysis demonstrates that CC genotype and C allele increased the risk of RA (OR for genotype = 6.72; 95%CI [1.75-25.64]/ OR for allele = 4.31; 95%CI [2.19-8.47]). Moreover, in the patient group, there was a significant correlation between mean erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) concentration with rs6859219 polymorphism ( $P < 0.05$ ).

**Conclusion:** Our findings propose a substantial correlation between rs6859219 polymorphism and RA risk and clinicopathological characteristics of this disease in the Iranian population.

**Keyword:** Rheumatoid arthritis; *ANKRD55* gene; *IL6ST* gene; Autoimmune disorder; Single nucleotide polymorphisms

## The effect of aerobic exercise on fatigue and morning dryness in women with rheumatoid arthritis

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**Background:** Morning fatigue and dryness are common symptoms in patients with rheumatoid arthritis. Aerobic exercise such as walking maybe effective in improving these symptoms. As a result, this study aimed to determine the effect of aerobic exercise on morning fatigue and dryness of the women with rheumatoid arthritis.

**Methods:** This clinical trial was conducted on 51 female patients with rheumatoid arthritis. At first, the patients were selected through non-probability sampling. They were then allocated into the intervention and control groups using block randomization. The walking intervention was performed based on the FITT (frequency, intensity, time, and type) principle during eight consecutive weeks. Data were collected before and after the intervention and analyzed using SPSS software version 22.

**Results:** Morning fatigue and dryness in the intervention group before the intervention were 84% and 88%, respectively, and after the intervention were 24% and 20%, respectively, while in the control group before the intervention were 100% and 88.5% and after the intervention 92.3%, respectively. And was 80.8%. Also, the statistical test of two variables of morning fatigue and dryness in both intervention and control groups before the intervention was not significant ( $P > 0.05$ ), but became significant after the intervention ( $P < 0.05$ ).

**Conclusion:** According to the results, 8-Week Aerobic Walking Program is recommended as an effective way to improve fatigue and morning dryness of women with rheumatoid arthritis.

**Keywords:** Walking; Fatigue and dryness; Rheumatoid arthritis

## Correlation between autoantibodies and internal organs involvement in Iranian systemic sclerosis patients

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**Aim:** The current study aimed to investigate the correlation between autoantibodies and scleroderma organ involvement in the central region of Iran (Isfahan).

**Methods:** This is a cross-sectional study in which we reviewed the files of patients diagnosed with scleroderma and were under the observation of rheumatology clinics and special clinics of scleroderma in Al-Zahra hospital of Isfahan. The laboratory data and physical examination findings of each patient reviewed and samples of 5cc blood were taken to determine the autoantibody profiles of them with a German-made EUROIMMUN kit of systemic sclerosis by the immunoblot assay. This kit can detect 12 different autoantibodies some of them specifically found in systemic sclerosis.

**Results:** We found a correlation between Scl-70 and diffuse scleroderma and also associated with interstitial lung disease and cardiac involvement. Anti-centromere antibodies CENP-A correlated with limited scleroderma and digital ulcers. PM/Scl75, PM/Scl100, Ku, and Ro52 autoantibodies were correlated with the presence of tendon friction rub. Anti-Th/To was associated with a higher rate of myopathy. Cardiomyopathy was more common among patients with higher levels of NOR-90, anti-Th/To, PM/Scl100, Ku, and Ro52 autoantibodies. The latter was also associated with pericardial effusion. The rest of the autoantibodies did not show any significant correlation with the clinical features of systemic sclerosis.

**Conclusion:** Some of the mentioned autoantibodies in this study can potentially predict organ involvements in the Iranian population.

**Keywords:** Scleroderma; Systemic sclerosis; Internal organ involvement; Autoantibody

## Association between the VDR Taq1 polymorphism and susceptibility to systemic sclerosis

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**Aim:** Vitamin D with its immunomodulatory effect has newly been proposed as an important factor in the pathogenesis of systemic sclerosis (SSc). This immunomodulatory function is mediated through binding to vitamin D receptor (VDR). Therefore, genetic variations in VDR gene may play a role in etiology of SSc. The aim of this study was to explore the association between VDR Taq1 polymorphism and the risk of SSc disease in an Iranian population.

**Methods:** The polymerase chain reaction and restriction fragment length polymorphism (PCR-RFLP) was used to detect the genotype of VDR Taq1 variant in 51 SSc patients and 50 healthy controls. The difference of genotype distribution between two groups was analyzed using Chi-square test. Logistic regression analysis was also performed to calculate the genotypes odds ratios (ORs) as a measure of association with the presence of SSc.

**Results:** The allelic frequency of VDR gene Taq1 variant in whole population and also in studied groups was in the Hardy-Weinberg equilibrium. The genotype and allele frequencies of the Taq1 polymorphism exhibited no significant differences between SSc patients and healthy controls neither in the crud state nor after adjustment for age and gender (odds ratio: 1.09 (CI = 0.91–1.32), P = 0.313).

**Conclusion:** Results of the present study suggested that Taq1 polymorphism may not contribute in the development of SSc in an Iranian population. However, regarding the controversial reports for Taq1 association with the risk of SSc in different ethnic population, further large cohort studies are necessary to confirm the results.

**Keywords:** Systemic sclerosis; Vitamin D receptor; Polymorphism; Taq1

## Genetic association of VDR ApaI polymorphism with scleroderma in an Iranian Northeast population

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**Aim:** Accumulating evidence indicates that aberrant vitamin D status could contribute to the risk of autoimmune diseases such as scleroderma (SSc). As this contribution is mediated through binding to vitamin D receptor (VDR), considering the genotype and allele frequencies of VDR gene polymorphisms may help to clarify the etiology of SSc. The aim of this study was to investigate the possible association of VDR gene ApaI variant with susceptibility to SSc in an Iranian population.

**Methods:** The study was conducted on 50 patients with scleroderma and 50 healthy controls. VDR ApaI polymorphism was genotyped using polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) technique. The difference of genotype distribution between the groups was analyzed using Chi-square test and logistic regression analysis.

**Results:** The allelic frequency of VDR gene ApaI variant was in the Hardy-Weinberg equilibrium both in whole population and also in studied groups. No significant difference were found for the allelic and genotype distributions of ApaI polymorphism between SSc patients and healthy controls neither in the crud state nor after adjustment for age and gender (OR=0.88; 95% CI=0.50-1.54, p=0.651).

**Conclusion:** The present study suggested that ApaI polymorphism may not contribute in the development of SSc in an Iranian population. As the association between ApaI polymorphism and SSc varies across different ethnic population, further large cohort studies are necessary to confirm the results.

**Keywords:** Systemic sclerosis; Vitamin D receptor; Polymorphism; ApaI

## Genetic association of VDR Apa1 polymorphism with scleroderma in an Iranian population

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**Aim:** Accumulating evidence indicates that aberrant vitamin D status could contribute to the risk of autoimmune diseases such as scleroderma (SSc). As this contribution is mediated through binding to vitamin D receptor (VDR), considering the genotype and allele frequencies of VDR gene polymorphisms may help to clarify the etiology of SSc. The aim of this study was to investigate the possible association of VDR gene ApaI variant with susceptibility to SSc in an Iranian population.

**Methods:** The study was conducted on 50 patients with scleroderma and 50 healthy controls. VDR ApaI polymorphism was genotyped using polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) technique. The difference of genotype distribution between the groups was analyzed using Chi-square test and logistic regression analysis.

**Results:** The allelic frequency of VDR gene ApaI variant was in the Hardy-Weinberg equilibrium both in whole population and also in studied groups. No significant difference were found for the allelic and genotype distributions of ApaI polymorphism between SSc patients and healthy controls neither in the crude state nor after adjustment for age and gender (OR = 0.88; 95% CI = 0.50-1.54, P = 0.651).

**Conclusion:** The present study suggested that ApaI polymorphism may not contribute in the development of SSc in an Iranian population. As the association between ApaI polymorphism and SSc varies across different ethnic population, further large cohort studies are necessary to confirm the results.

**Keywords:** Systemic sclerosis; Vitamin D receptor; Polymorphism; ApaI



## Plasma microRNAs (miR-146a, miR-103a, and miR-155) as potential biomarkers for rheumatoid arthritis and disease activity in Iranian patients

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**Background:** Previous studies have shown that several microRNAs (miRNAs) are dysregulated in the whole blood as well as diverse cells and tissues from rheumatoid arthritis (RA) patients. The aim of the current study was to determine if the expression of miR-146a, miR-103a, and miR-155 in whole blood of RA patients could confer potential markers in evaluating of activity-severity of the disease in RA patients with established disease.

**Methods:** Whole blood samples were obtained from 30 RA patients and 30 healthy subjects. The RNA content of blood samples was isolated, cDNA was synthesized, and transcript levels of miR-146a, miR-103a, and miR-155 were determined using Real-time PCR. The clinicopathological characteristics of the patients were also evaluated.

**Results:** It was detected that expression level of miR-146a (fold change= 1.85,  $P = 0.004$ ), miR-103a (fold change = 2.44,  $P = 0.0018$ ), and miR-155 (fold change = 1.94,  $P = 0.0025$ ) were significantly upregulated in the whole blood samples of RA patients in comparison to that of healthy subjects. Expression level of miRNAs was correlated with clinicopathological characteristics of the patients, including Disease Activity Score 28 (DAS28), Simple Disease Activity Index (SDAI), 28Tender Joint Count (TJC-28), 28Swollen Joint Count (SJC-28), C-reactive protein (CRP), Rheumatoid factor (RF), and anti-cyclic citrullinated peptide (anti-ccp) antibodies.

**Conclusions:** Upregulated levels of miR-146a, miR-103a, and miR-155 in the whole blood samples of RA patients could confer a potential marker of activity-severity of the disease in RA patients with established disease.

**Keywords:** Rheumatoid arthritis; microRNA; Whole blood sample; Disease biomarker

## Changes in BMD T-score and FRAX score from pre-to post-treatment with biosimilar teriparatide: A multicenter, prospective, quasi-experimental study

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**Backgrounds:** Teriparatide is a recombinant analog of the parathyroid hormone and an anabolic treatment modality for osteoporosis. This study aimed to evaluate the effectiveness of biosimilar teriparatide (CinnoPar, CinnaGen Co., Iran) in osteoporotic patients after at least one year of treatment.

**Methods:** In this prospective, multicenter, single-arm, quasi-experimental study, 239 eligible patients received subcutaneous injections of biosimilar teriparatide 20 µg once daily for at least one year. The main outcome measure was the change in bone mineral density (BMD) T-score from baseline (pre-treatment) to end of the study (post-treatment). In addition, the change in the fracture risk assessment tool (FRAX) score was calculated to estimate the 10-year probability of major and hip fractures pre- and post-treatment.

**Results:** A total of 239 patients (age,  $63 \pm 12.14$  years; female, 88.28%) were included, of which 27.62% (66/239), 14.64% (35/239), and 57.74% (138/239) received biosimilar teriparatide for 12-16 months, 17-20 months, and 21-24 months, respectively. From baseline to end of the study, the T-score at the lumbar spine increased from  $-2.67 \pm 1.04$  to  $-2.26 \pm 1.11$  (mean percent change,  $13.07 \pm 62.89$ ; P-value < 0.001). Similarly, the T-score at femoral neck increased from  $-2.18 \pm 0.87$  to  $-2.09 \pm 0.93$  (mean percent change,  $3.81 \pm 31.52$ ; P-value = 0.006). The proportions of patients with maintained or improved BMD T-score at the lumbar spine and femoral neck sites were 85.36% (204/239) and 69.04% (165/239), respectively. Similar results were obtained in subgroups of patients with rheumatoid arthritis and those with a history of a previous fracture or parental hip fracture. FRAX scores did not change significantly during the study (p-values of 0.551 and 0.973 at the lumbar spine and femoral neck, respectively).

**Conclusion:** We observed considerable improvements in BMD following treatment with the biosimilar teriparatide for one year or more. The biosimilar teriparatide can be considered as an effective treatment option in female and male patients with osteoporosis.

**Key words:** Osteoporosis; CinnoPar; Bone density; Fracture risk

## Evaluation of changes in bone density before and after one-Year administration of denosumab in patients referred to Imam Reza Hospital

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**Aim:** The aim of this study was to evaluate the changes in bone density before and after administration of at least one year of denosumab in patients referred to Imam Reza Hospital.

**Methods:** The present study is a clinical trial study that was performed on 202 patients with osteoporosis referred to Imam Reza Hospital and a private clinic in Tehran during 1397 and 1398. Denosumab 60 mg was injected subcutaneously in two doses 6 months apart for all patients. Then, for monitoring 6 months after the second dose injection, densitometry was performed for the patient by DXA method and BMD and T-score were obtained and the complications were recorded in the mentioned form.

**Results:** The difference in bone density of patients before and after treatment with denosumab was significant ( $p < 0.05$ ) and also the risk of major fracture and the risk of hip fracture before and after treatment with denosumab were significantly reduced ( $p < 0.05$ ). The difference in bone mineral density of patients in all age groups before and after treatment with denosumab was significant ( $p < 0.05$ ).

**Conclusion:** Denosumab reduces the risk of bone fractures in postmenopausal women and increases their bone density. It seems that Denosumab can be used as an effective drug to increase the bone density of postmenopausal women and prevent them from increasing the risk of fractures.

**Keywords:** Bone density; Denosumab; Osteoporosis

## Survival rate of severe systemic lupus erythematosus patients admitted to ICU

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**Aim:** As SLE is a multisystem autoimmune disease with high morbidity and mortality, we aimed to evaluate survival of SLE patients with severe disease admitted to ICU of Shariati Hospital as a referral center for SLE in Tehran University of medical sciences (TUMS).

**Methods:** Using statistical systematic analysis, the commonest mortality causes in these patients were extracted by order of prevalence and final results were shown in a table. The table is filled by data obtained from a questionnaire (from patients' case files). Then survival analysis was performed using Stata software. After data entry into this software, we made the desired comparisons using parametric and non-parametric statistics. Survival analysis modeling methods to estimate patient survival and each factor affecting it were modeled and estimated.

**Results:** Of the 52 patients, 48 (92%) were female. The mean age was 35 years. 44.23% (23 patients) died during ICU stay. In patients admitted with a diagnosis of lupus flare up, the median survival was higher than in patients admitted for other causes. The survival rate was significantly higher in men than women. The most common causes of death were sepsis and DIC and the most common fatal infection was pneumonia. There was a significant relationship between the use of cyclosporine, ARBs, ACEIs and the overall survival rate.

**Conclusion:** Nearly half of the patients died during ICU stay. Survival rates were higher in patients admitted for relapse than in others, also in men and those taking cyclosporine, ACEI, and ARB.

**Keywords:** SLE; ICU; Survival; Mortality

## Evaluation of the effect of phosphorus-32 radiosynovectomy in patients with refractory rheumatoid arthritis by intra-Articular injection of corticosteroids

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**Introduction:** Rheumatoid arthritis is one of the most common autoimmune diseases. Nowadays, radiosynovectomy of the knee joint has become one of the most popular topical treatments in patients with stable and resistant arthritis.

**Materials and Methods:** In a prospective study, 31 patients with rheumatoid arthritis over 18 years of age with knee arthritis resistant to systemic therapies and repeated intra-articular injections of corticosteroids were enrolled. After intraarticular injection of phosphorus-labeled 32, patients were visited by a rheumatologist at intervals of two weeks, 1 month, 2 months and 6 months for the severity of knee involvement (Larsen radiological criteria) and disease activity (DAS-28 ESR).

**Results:** In this study, the severity of knee involvement and disease activity was moderate or severe in most patients. Pain, tenderness, swelling and the range of motion were significantly reduced at 2 weeks, 2, 1 and 6 months P32. In this study, there was no correlation between age, gender, duration of illness, education, drugs and DAS-28 ESR and Larsen score. No serious systemic or local complications were observed. Exacerbation of pain and swelling during the first week after injection was significantly associated with disease severity.

**Conclusion:** P32 reduces pain, swelling and improve range of motion in a short time. This improvement lasts for at least 6 months. Also, this treatment does not have a serious systemic or local complication.

**Keywords:** Radiosynovectomy; Phosphorus 32; Rheumatoid arthritis

## Socioeconomic status and systemic lupus erythematosus in Iranian patients

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**Aim:** Lupus is a multifactorial disease predisposed by complex interactions between genetic and environmental factors, we designed a study looking for the relation between SES and first manifestation of the disease in Iran.

**Methods:** In this cross sectional retrospective study, 191 lupus patients, whose diagnosis was confirmed with ACR criteria and presented to Rheumatology clinic of Shariati university hospital between 2009 until 2019 were enrolled. Information was collected both from patients' records and patients standard questionnaire (education, wealth, housing) about clinical manifestations and their Socioeconomic status. Information on SES was analyzed by PCA (principle component analysis) statistical method.

**Results:** In this study, 66 (34.5%) patients were low SES, 62 (32.5%) Patients intermediate were SES and 63 (33%) patients were high SES. there was no statistically significant difference between clinical manifestation and different SES groups. It was found that the constitutional symptoms and leukopenia are significantly more common in the educated population (>12 years) (P-value < 0.050). Also, mucocutaneous symptoms, especially malar rash, and joint symptoms are significantly more common in the rural population (P-value < 0.05).

**Conclusion:** There was no statistically significant difference between the first clinical manifestation of lupus and the socioeconomic status of the patients.

**keywords:** Socioeconomic status, Wealth based asset index, Systemic lupus erythematosus, Iran

## Outcome measures of core decompression in systemic lupus erythematosus patients suffering from hip osteonecrosis: A retrospective cohort study

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**Background:** Osteonecrosis has been a great cause of morbidity for patients with systemic lupus erythematosus. Although core decompression is an approved and trusted technique to prevent further joint deterioration, SLE patients seem to benefit less from this surgical method. We aimed to determine the probable outcome measures of core decompression in treating osteonecrosis in SLE patients.

**Methods:** We conducted a retrospective cohort study in Imam Khomeini Hospital and Shariati Hospital, Tehran University of Medical Sciences (TUMS). SLE patients with femoral head osteonecrosis (Ficat stage 2) whom underwent hip joint core decompression between July<sup>16th</sup> 2013 to January<sup>27th</sup> 2019, have entered the study. Patients' demographic features, clinical data, comorbidities, laboratory findings, follow-up hip plain radiographs and history of total hip arthroplasty after core decompression was obtained via reviewing hospital clinical records and interviewing. Evaluation of recovery or regression status of the affected joints was done by reviewing follow-up hip radiographs based on Ficat-Arlet classification system. Patients' level of satisfaction from core decompression was evaluated with Oxford Hip Score questionnaire.

**Results:** 23 patients (39 affected hip joints) have participated in this study. 53.8% of affected joints showed signs of radiographic deterioration in follow-up imaging. 61.5% of patients had unsatisfactory joint performance. 33.3% of affected hip joints underwent total hip arthroplasty up to 5 years from core decompression. Patients with lupus who underwent core decompression surgery due to osteonecrosis of the femoral head and had a history of receiving bisphosphonate were 83.2% less dissatisfied with their joint function than patients without a history of bisphosphonate use (Odds ratio: 0.168, P value: 0.020, CI95%: 0.037\_0.752). Also, patients with lupus who developed osteonecrosis of the femoral head with abnormal aPL levels were 10.3 times more likely to have radiographic deterioration of the hip joint after core decompression (P value: 0.057 CI 95% 0.930\_144.140). The cumulative dose of prednisolone was used before and after core decompression to investigate the relationship with the three determinants of prognosis. In this study, no significant relationship was found between prednisolone use and prognostic factors.

**Conclusion:** Based on the findings of our study, it can be concluded that patients with lupus who have grade 1 and 2 osteonecrosis of the femoral head and have positive antiphospholipid antibodies in the course of the disease, do not have acceptable benefit from core decompression. In this group of patients, it is recommended to undergo total hip arthroplasty directly to improve hip joint function. It is also recommended that these patients use drugs of the bisphosphonate family. Because the drugs of this family increase the level of satisfaction with joint function after surgery. Due to the fact that the cumulative dose of corticosteroids did not show a significant relationship with the prognosis of hip joint after core decompression, reduction or discontinuation of corticosteroids is not recommended in these patients.

**Key words:** Osteonecrosis; Avascular necrosis; Systemic Lupus Erythematosus; Core decompression