

Title:**Potential value of serum progranulin as an activity biomarker in rheumatoid arthritis patients: relation to musculoskeletal ultrasonographic evaluation****Abstract:**

Aim of the work: To determine the serum progranulin levels in rheumatoid arthritis (RA) patients and to study its relation with disease activity assessed clinically and by ultrasound (US). *Patients and methods:* The study included 52 RA patients and 19 age and sex matched controls. Disease activity score (DAS-28) and modified health assessment questionnaire were assessed. Progranulin was measured by ELISA. Ultrasound examination was performed and the German US7 score (USS) recorded. *Results:* The patients mean age was 42.8 ± 10.5 years; disease duration was 4.9 ± 5.02 years; 47 females and 5 males with a mean DAS28 of 4.4 ± 0.9 (3 in remission; 5 low activity; 31 moderate and 13 high). The mean serum progranulin level in patients (9.5 ± 45.5 ng/ml) was significantly elevated compared to control (32.74 ± 9.2 ng/ml) ($p < 0.0001$). There was a significant difference in the progranulin levels and USS according to the grades of disease activity ($p < 0.0001$ and $p = 0.037$ respectively). The progranulin and USS significantly correlated with the DAS28 ($r = 0.64$, $r = 0.58$; $p < 0.0001$ respectively) and erythrocyte sedimentation rate ($p < 0.0001$). The progranulin and USS significantly correlated with each other ($r = 0.32$, $p = 0.02$). At a cut-off value 51.5 ng/ml, progranulin would discriminate between patients and control at sensitivity 96.2%, specificity 100% and accuracy 99%. *Conclusion:* Serum progranulin levels were higher in RA patients than age and sex matched controls. It significantly correlated with disease activity measured by DAS28, ESR and ultrasound activity measured by German US7 score. Serum progranulin levels may be a useful biomarker in RA disease. Ultrasound correlated with ESR and DAS28 in RA patients.