To investigate different parameters in SF of patients with systemic lupus erythematosus (SLE), rheumatoid arthritis (RA) and osteoarthritis (OA).

Methods We describe the evaluation of SF in 28 SLE, 41 RA, and 36 OA patients. SF is collected via arthrocentesis in heparinized or EDTA tubes. The diagnosis was established in all subjects prior to SF examination based on typical clinical and laboratory features. The clinical activity of the diseases at the time of joint aspiration varied.

Results The white blood cell (WBC) count in 28 SLE patients, ranging from 500 to 12,250 with an average count of 3,473 cells/μl with 55% polymorphic nuclear cells (PMNs), was significantly lower than in RA - 11,048 cells/μl with 75% PMNs. The WBC count in OA patients was significantly lower - 3718±2373 cells/μl. The highest protein levels were found in RA patients, followed by SLE and OA patients: total protein respectively 50.3±6.9 vs 45±7.3 vs 48.6±10.9 g/L and IgG concentration - 21.22±3.53 vs 9.53±4.27 vs 18±2.48 g/L. Circulating Immune Complexes were significantly higher in the RA group compared to SLE group and OA: 0.247 ±0.07 vs 0.193±0.05 vs 0.108±0.40 mg/ml.

Conclusions The analysis of the SF of lupus patients has shown elevated levels of WBCs, total protein and circulating immune complexes as a markers for the high SLE activity. Synovial fluid is a possibility to define the type of arthritis in different rheumatic diseases.