Background: Emerging observational data have shown that rheumatic patients seem not to be more susceptible to SARS-CoV-2 infection neither to worse outcomes. However, the exact role of COVID19 in SARS-CoV-2 infection is still unknown due to the high proportion of subclinical infection. In this scenario, measuring the seroprevalence of SARS-CoV-2 may be crucial to improve the knowledge about the impact of COVID19 in rheumatic patients.

Objectives: To estimate in a COVID19 high-endemic area (Lombardy, Italy) the prevalence of anti-SARS-CoV-2 antibodies in a large cohort of patients with rheumatoid arthritis (RA) or spondyloarthritis (SpA) treated with biologic (b-) or targeted synthetic (ts-) disease modifying drugs (DMARDs).

Methods: A seroprevalence cross-sectional study was conducted in the period between 4th May and 16th June 2020, including patients with confirmed RA or SpA treated with b- or ts-DMARDs. Patients were tested for anti-SARS-CoV-2 IgG, IgM and IgA antibodies against main viral antigens (nucleocapsid [N], spike 1 [S1], receptor-binding domain [RBD]) using ELISA. These data were compared with the healthy population. Among seropositive patients, 55.3% were asymptomatic, 16% had minor and 19% major symptoms consistent with COVID19, risk factors and comorbidities. Serological response to RBD was evaluated according to symptom severity (asymptomatic, minor, or major [respiratory and fever >37.5°C] symptoms).

Results: The study population included 300 patients (62% females, mean age 53 years, 20% over 65 years old) diagnosed with RA (56%), psoriatic arthritis (23%), or anklyosing spondylitis (21%), treated with anti-TNF (57%), abatacept (20%), anti-IL6 (11%), or JAK inhibitors (5%). Four patients (1.3%) referred a prior diagnosis of COVID19 defined by nasopharyngeal swab. Immunoglobulin titers were evaluated resulting in 9%, 13.6%, and 13.3% positive patients for IgG, IgM and IgA, respectively (Table 1), with no significant difference to the healthy population. Among seropositive patients, 55.3% were asymptomatic, 16% had minor and 19.6% major symptoms, 7.1% were hospitalized. No deaths or admission to intensive care units occurred. IgM, IgG and IgA titers to RBD were higher in patients with both minor and major symptoms compared with asymptomatic ones (Figure 1). No differences were found between seronegative and seropositive patients in relation to age, sex, rheumatic diagnosis, and treatments with b- or ts-DMARDs. A relative lower risk of seropositivity was observed in patients receiving concomitant methotrexate (RR 0.49, 95% CI 0.25-0.94; p 0.04), while an increased risk was associated with obesity (RR 2.33, 95% CI 1.26-3.79; p 0.019) and presence of at least 2 comorbidities (RR 1.94, 95% CI 1.11-3.15; p 0.037). Corticosteroids use was numerically more frequent in seropositive than seronegative patients (16% vs 14%).

Conclusion: This study confirms that, even in a cohort of rheumatic patients, the spread of SARS-CoV-2 infection is much greater than that observed by capturing only swab-diagnosed COVID19 cases. The underlying rheumatic disease and ongoing therapy with b/ts-DMARDs do not seem to impact SARS-CoV-2 antibody positivity, which conversely seems to be proportional to the intensity of COVID19 symptoms and less frequent in patients receiving concomitant methotrexate. The project was co-financed by Lombardy Region 2014-2020 Regional Operational Programme under the European Regional Development Fund.