



Seroprevalence of SARS-CoV-2 Antibodies in Autoimmune Inflammatory Rheumatologic Patients

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Background: Immune responses in AIIRD patients may be reduced and influenced by immunosuppressive treatments[1]. The effect of immunosuppression on the mounting of SARS-CoV-2 antibodies in AIIRD is not clear.

Aims: To assess the prevalence of SARS-CoV-2 antibodies in AIIRD patients and to define clinical factors affecting this prevalence.

Methods: Consecutive consenting AIIRD patients from the Rheumatologic department in Tel Aviv Medical Center participated in the study.

Patients answered a questionnaire and were tested for SARS-CoV-2 antibodies. A two stage antibody testing was done in order to increase specificity: an Abbott assay for SARS-CoV-2 nucleoprotein IgG and a DiaSorin assay against the S1/S1 antigen.

Results: the study included 560 AIIRD patients (229 RA, 149 PsA, 84 SLE, 55 vasculitides, 40 SpA, 3 other CTD), of them 26 patients were found to have SARS-CoV-2 IgG antibodies (4.6%) (table 1). This was more than double than a previous prevalence in the same clinic population studied after the first wave of the pandemic in Israel, which was 2.07% (accepted for publication).

A lower rate of immunosuppression (including glucocorticoids, conventional synthetic disease modifying drugs (DMARDs), biologic DMARDs and targeted synthetic DMARDs) was found for positive SARS-CoV-2 IgG patients compared to negative serology patients (table 1, $p=0.009$). There was also a trend for the subgroup of patients on bDMARDs (26.92% vs. 47% respectively, $p=0.06$).

Positive SARS-CoV-2 PCR swab test was reported and confirmed in 36 patients, of them 14 (38.89%) had negative serology (table 1). There was a trend towards older age in the patients who had antibodies and positive PCR to SARS-CoV-2. Patients

who did not have antibodies had numerically more than double rates of glucocorticoids and bDMARDs treatment. The time between positive PCR test to positive serology test was significantly shorter (mean±standart deviation (STD) (95%CI) 75.57 ± 40.44 (57.17-93.98) than the time between positive PCR to negative serology test (130.79 ± 86.47 (80.86-180.72) ($p=0.04$) (figure 1) suggesting a fading of the antibody response with time.

Conclusions: The prevalence of SARS-CoV-2 IgG was 4.6% in a population of AIIRD patients from a single tertiary medical center in Israel. SARS-CoV-2 seroprevalence tended to be low among AIIRD patients on immunosuppressive treatment, especially biologics, , including in patients with a confirmed history of positive SARS-CoV by PCR, similar to other studies [2].

As in individuals without AIIRD, the mounting of SARS-CoV-2 IgG seems to fade with time.

Larger studies are needed to confirm the potential effect of immunosuppression on the antibody response in AIIRDs under immunosuppression.