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POLITECNICA  
DELLE MARCHE

## RESEARCH AREA: EPIDEMIOLOGY

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**TITLE:** Prevalence of covid infections in a population of rheumatic patients from Lombardy and Marche treated with biological drugs or small molecules: a multicentre retrospective study.

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**UNIVPM Research Group:** DISCLIMO, Clinica Reumatologica.

**Research activity description:** The COVID-19 pandemic has raised questions about the management of systemic immunosuppressive treatments for rheumatic conditions. Rheumatologists are faced with a number of difficult challenges: on the one hand, it is well known that rheumatic patients are at risk of developing infections because their immunocompromised state is related to their active underlying condition and the use of immunomodulatory treatment; on the other, drugs such as hydroxychloroquine, tocilizumab and baricitinib that are widely used to treat rheumatic diseases are now being used to treat COVID-19. The aim of this multicentre retrospective study of rheumatic patients in the Italian regions of Lombardy and Marche was to determine whether rheumatic patients receiving biological or small molecule treatment are more susceptible to the development of COVID-19 than the general population.

**Methods:** The local registry data of 10,260 patients with rheumatic conditions such as rheumatoid arthritis, axial spondyloarthritis, connective tissue disease or auto-inflammatory disease being treated with biological disease-modifying anti-rheumatic drugs (bDMARDs) or small molecules were evaluated during the observation period lasting from 15 March to 23 April 2020. The final analysis was based on the registry data relating to 7,204, telephone contacts and/or outpatient visits (mandatory in our outpatient clinic every 2-3 months for the consignment of the drugs).

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**Results:** Forty-seven of the 7,204 patients tested positive for COVID-19, seven of whom died; the patients who had symptoms resembling those of COVID-19 but had negative swabs were considered negative for the disease. The overall infection rate was 0.65, and the crude case fatality risk (CFR) in the patients with COVID-19 was 14.9%. Surveillance data showed that there was no increase in the susceptibility to COVID-19 in Lombardy, where 11,377 deaths led to a crude CFR of 18.3%. There was no difference in the mortality rate among the patients receiving the different individual biological drugs or small molecules, but there was an albeit non-significant trend towards more infections among the patients receiving tumour necrosis factor inhibitors. Age and comorbidities (particularly diabetes and cardiovascular disorders) may play a significant role in increasing the risk of coronavirus infection.

**Conclusions:** Our findings suggest that the susceptibility of patients with rheumatic diseases to COVID-19 is the same as that of the general population, but confirm that age, disease duration, and the number of co-morbidities are associated with an increased risk of a severe form of the disease. It seems that the drugs used to treat COVID-19 because of their effect on a cytokine storm do not effectively prevent the disease itself and do not seem to reduce mortality.

**Collaborators:** : ASST-Fatebenefratelli L. Sacco University Hospital, University of Milan; IRCCS Policlinico San Matteo, Pavia, Rheumatology Unit; Division of Clinical Rheumatology, ASST Gaetano Pini-CTO Institute, Milan, Vita-Salute San Raffaele University, Milan.

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