

## Increased COVID-19 risk in autoimmune disease, but not more severe



People with autoimmune disease have an increased risk of getting infected with COVID-19, especially if they use steroid medicines. However, the risk of severe outcomes of COVID-19 such as hospitalisation or death is not increased.

### INTRODUCTION

COVID-19 is the disease caused by a new type of coronavirus called severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). It was declared a pandemic by the World Health Organization on 11 March 2020. COVID-19 has forced people to change their behaviours to try to limit the spread of infection.

People with autoimmune diseases such as inflammatory bowel disease, psoriasis, or rheumatic diseases may take drugs that suppress their immune systems. Some of these medicines can increase the risk of infection.

### WHAT DID THE AUTHORS HOPE TO FIND?

The authors wanted to see how common COVID-19 is in people with autoimmune diseases. They also hoped to find out more about the outcomes for people with autoimmune diseases when they get COVID-19, such as how severe the infection is, and whether they need to go to hospital.

### WHO WAS STUDIED?

The study looked at over 319,000 people from 15 countries to work out how common COVID-19 infection is in people with autoimmune disease. They also looked at over 2700 people with a confirmed diagnosis of COVID-19 to examine the clinical outcomes. The people included had a range of different autoimmune diseases, such as autoimmune hepatic (liver) diseases, inflammatory bowel disease, psoriasis, and lupus. The average age was 42, and just over half of the people included were female.

### HOW WAS THE STUDY CONDUCTED?

This was a systematic review and meta-analysis. A systematic review aims to identify all the published evidence on a particular topic and draw it together into one summary. This paper also included a meta-analysis, which uses statistics to be sure that the conclusions are meaningful.

The authors searched databases of journal articles to find studies looking at COVID-19 in people with autoimmune disease. They combined findings from these to see how common COVID-19 was. They also looked at severe outcomes such as needing to be admitted to hospital or intensive care, needing ventilation, and death.

In the analysis, the authors looked at whether any specific factors or medicines contribute to catching COVID-19, and to having worse outcomes. This included seeing if the medicines that people take for their autoimmune disease affect their likelihood of catching COVID-19, or having a more severe infection. Medicines were put into three main groups: 1) glucocorticoids (steroids), 2) conventional synthetic disease-modifying antirheumatic drugs (often shortened to csDMARDs), and 3) biologic or targeted synthetic DMARDs (b/tsDMARDs). This last group was subdivided depending on whether people were taking the b/tsDMARD on its own (monotherapy) or together with a csDMARD (combination therapy).

### WHAT WAS THE MAIN FINDING?

The main finding was that COVID-19 was twice as common in people with autoimmune diseases compared to the general population. Taking glucocorticoids increased the risk of getting infected with COVID-19. On the other hand, the risk of severe outcomes of COVID-19 such as hospitalisation or death was not increased in people with autoimmune disease compared to those without, or in the general population.

The authors also found some factors that were associated with having more severe COVID-19. Like in the general population, being older, and having other diseases such as hypertension or diabetes had an impact. Taking steroid medicines was another important factor that increased the risk of having severe COVID-19.

Taking csDMARDs or a combination of b/tsDMARD and csDMARDs also increased the risk of getting a severe infection. However, people with autoimmune disease who were taking a b/tsDMARD as monotherapy – particularly a group of medicines called tumour necrosis factor inhibitors (TNFi) – had a reduced risk of hospitalisation and death due to COVID-19.

#### ARE THESE FINDINGS NEW?

Yes. This study is the first comprehensive meta-analysis to determine the prevalence and clinical outcomes of COVID-19 in people with autoimmune disease.

#### WHAT ARE THE LIMITATIONS OF THIS STUDY?

There are some limitations to this type of study. First of all, the observational studies that were combined in the meta-analyses included people with different backgrounds, which reduces how reliable the data are. Secondly, although the authors separately assessed the effect of b/tsDMARD as monotherapy or in combination therapy, not all studies presented information in these two groups. Third, the accuracy of the test for COVID-19 is only 70%, so it is possible people in the studies had false positives or false negatives, which might have affected the results. Lastly, the COVID-19 pandemic is quickly spreading, and the picture continues to change.

#### WHAT DO THE AUTHORS PLAN TO DO WITH THIS INFORMATION?

The authors are interested in doing a bigger analysis with updated data to understand which specific b/tsDMARDs other than TNFi can contribute to better or worse outcomes of COVID-19 in people with autoimmune disease.

#### WHAT DOES THIS MEAN FOR ME?

If you have an autoimmune disease, you may be more at risk of catching COVID-19. But this study does not suggest you are more likely to have severe disease or die from it. Some medicines can increase the risk of getting COVID-19 and having worse outcomes. However, it is very important that you do not stop taking medicines for your autoimmune disease without talking to your doctor.

Protect yourself from COVID-19 by following the advice of the government in your country, including wearing masks, washing your hands regularly, avoiding touching your face, and following social distancing rules.

Vaccination programs to slow down the spread of COVID-19 have started. Guidelines recommend that all people with autoimmune disease get vaccinated.

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