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COVID-19 and previous exposure to antibiotics: a dangerous combination



In a cohort study of all patients diagnosed with COVID-19 in Catalunya with disease's complications, a group of investigation has studied its relationship with the antibiotics. Considering the intensity, the recent take, and high priority antibiotics they conclude that the danger of contracting a serious illness or die augmented a 12% with an antibiotic's intake. However, considerable variations exist between groups, being those who had taken antibiotics recently the most vulnerable. This fact accounts to an alteration in the microbiota, especially intestinal, reducing its diversity and therefore altering the patient's immunity.

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Our work included all patients diagnosed with COVID-19 during the first wave of the pandemic in Catalonia, from March to June 2020, to study the severity of the COVID-19 infection by presence of pneumonia, hospitalization or death, and the influence of previous antibiotic consumption in the development of these complications.

Our study reveals that there is a relationship between previous antibiotic use and developing a severe COVID-19 infection.

Of 280,679 people with COVID-19, 146,656 (52.3%) had taken different antibiotics during the previous two years. We classified the antibiotic amount taken according to the intensity (low [1-2 treatment courses], medium [3-4] or high ≥ 5), the recent antibiotic intake (less than two

months or more than two months before COVID-19 infection), and the consumption of highest priority antibiotics (according to the World Health Organization those antibiotics should be reserved as “last resort” options for treatment of confirmed infections due to multi-drug-resistant organisms).

One of the most important conclusions of our study is that the risk of developing pneumonia, being admitted to hospital or dying was 12% higher in people who had consumed antibiotics in comparison with those who had not.

Focusing on those who had been previously treated with antibiotics, those people with a high intensity of antibiotic use had a 19% more severe COVID-19 infection when compared to those with medium or low intensity.

Regarding people who had been treated with antibiotics during the previous two months to the COVID-19 infection, they had a 41% higher risk of more severe infection than those who received antibiotics more than two months ago.

And finally, those people who received highest priority antibiotics had a 35% higher risk of more severe infection by COVID-19 than those who received other antibiotics.

It is known that consuming antibiotics alters the human microbiome, which are the different microorganisms residing on the human body, mainly the gut microbiome. Thus, the antibiotic intake would reduce the microbiome diversity and produce alterations in our immunity against viral infections. This might be the reason why people with more severe COVID-19 infection in our study were those with more recent antibiotic consumption.

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