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COVID-19 and cardiovascular disease in women

COVID-19 y enfermedad cardiovascular en la mujer

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INTRODUCTION

On March 11, 2020, the WHO defined COVID-19 as a global pandemic. A year later, as of January 31, 2021, the numbers were staggering, close to 102 million cases of COVID-19 and more than 2.2 million deaths.

The pandemic accelerated in the Americas when the epicenter shifted from Europe around May 2020. As of October 9, 2022, more than 621,366,370 million positive cases and 6,557,231 million deaths have been reported; more than 68.3% of the world population is fully vaccinated for COVID-19.[1]

In the first meta-analysis with available data, it was found that men could have a higher risk of suffering from a severe condition of COVID-19; the number of men hospitalized was 50% more than women.[2,3] When examining the greater likelihood that men would have more severe manifestations of COVID-19, the differences in biological pathways between men and women in their immune response to the virus were assessed. It was found that women produced more effective immune responses and better adapted to viruses, resulting in less severe cases of COVID-19.[4] There are currently several hypotheses by which patients with cardiovascular risk factors (CVRF) with atherosclerosis and with established cardiovascular disease have been associated with worse outcomes in people with COVID-19. Among them are the uncontrolled inflammatory state, the immunological alteration, and the viral properties currently under study.[5]

As with other infections by different pathogens, COVID-19 affects differently according to existing gender norms. Women were also affected by other factors, such as sociodemographic, physiological, genetic, immunological, and cultural. Many of them had to have more than three roles simultaneously. It was observed that the age group between 40-50 years presented a higher % risk for suffering from Long COVID, that is, a longer duration of symptoms or long-term effects. This would be because of sex hormones, which correspond to fatigue, myalgia, palpitations, cognitive impairment, sleep disorders, and perimenopausal and menopausal symptoms.[6,7] According to the WHO, today it is known that the most frequent cardiovascular conditions due to COVID-19 infection and long COVID are: myocarditis, pericarditis, pericardial effusion, arrhythmias, venous thromboembolism, heart failure and heart attacks (pathologies that increase the probability to trigger sudden death).

Most of the reports of women who presented with COVID-19 (85%) were cardiovascular symptoms such as chest pain, palpitations, exercise intolerance, and tachycardia. The proposed causative mechanisms were inflammation, immune system activation, viral persistence, endothelial dysfunction, metabolic changes during exercise, and nonspecific cardiac abnormalities after acute infection.[8]

Recent studies published by the American Heart Association (AHA) affirm that among patients who suffered from COVID-19 and presented a poor evolution of the disease, there was a direct relationship between the possibility of giving underlying cardiovascular disease (CVD) and a previous myocardial injury. These findings did not depend on the

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severity of the acute infection. The pre-existing cardiovascular pathologies identified that exposed the patient to a higher risk of suffering from COVID-19 are heart failure, ejection fraction deteriorated, dilated and hypertrophic cardiomyopathy, coronary and valvular disease (angina, infarction, previous angioplasty, cardiac surgery) and arrhythmogenic dysplasia of the right ventricle.

Regarding clinical studies of COVID-19, as in most other pathologies, the number of women participating was lower than that of men. The evidence demonstrates the need to incorporate more women in all clinical studies. More cardiovascular follow-up should be carried out about this disease in all patients with acute illness, those with symptoms compatible with long COVID, and those who have recovered.

Reassessing this history of disease in patients remains a pending issue, depending on a complete history and complementary studies to better understand these cardiovascular findings in the future.

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