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Treatment prospects for post-COVID-19 cardiac patients

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Since the beginning of the pandemic, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has posed a serious threat to the health care system and medical personnel, but the fight against the pandemic itself will not end our struggle with complications that will arise in patients struggling with long-COVID-19 and the post-COVID-19 syndrome [1]. Research among people hospitalized for COVID-19 shows that 32.6% to 87.4% of patients still reported at least one symptom that persists after several months [2]. COVID-19 can cause difficulties even with a mild or moderate course. Long-COVID-19 occurs in non-hospitalized individuals roughly 6–9 months after infection, according to Hamburg Doctors' observations. The alterations are obvious in multiple physiological systems, with the heart, blood vessels, lungs, and kidneys being the most affected. There was a trend toward greater localized cardiac fibrosis in the circulatory system, but no edema was seen. The ventricles of the heart showed more severe alterations. In the left ventricle, a slightly reduced ejection fraction, accompanied by a higher concentration of cardiac biomarkers, reflecting little myocardial involvement. On the other hand, in the right ventricle, the systolic fraction was assessed as significantly reduced. In the long run, even a little deterioration in left ventricular function and a rise in N-terminal pro-B-type natriuretic peptide (NT-proBNP) concentration increases the risk of mortality in the general population. To minimize untreated cardiac impairment, NT-proBNP testing following recovery from COVID-19 may be advised, followed by echocardiographic surveillance if increased levels are seen. In the case of blood vessels, "incompressible" femoral veins were found, suggesting a significantly higher incidence of deep vein thrombosis in study participants after SARS-CoV-2 infection. Changes in the kidneys were also seen, as demonstrated by higher creatinine and cystatin C levels, as well as lower sodium and potassium levels. An initial phase of chronic kidney disease, which raises the risk of cardiovascular disease and mortality, may be indicated by abnormalities in the composition of the eyes and the picture of the kidneys [3]. Following COVID-19 infection, patients may have a variety of cardiovascular consequences, including an increased risk of cardiovascular disorders, arrhythmias, ischemic heart disease, pericarditis, and myocarditis, as well as heart failure and thrombosis. Even among patients who were not hospitalized in the acute phase of illness, these risks and burdens were obvious, and they gradually increased depending on the settings of treatment. COVID-19 survivors face a considerable risk and yearly burden of cardiovascular disease, according to studies [4, 5]. Long-COVID-19 patients report a wide range of symptoms, ranging from moderate to highly debilitating. The origins of this illness have been hypothesized by scientists, ranging from

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chronic viral reservoirs and autoimmune to tiny blood clots. A mixture of these things, according to many, is to blame. Vaccines are the most effective strategy to prevent long-COVID-19 so far. COVID-19 vaccinations minimize the risk of SARS--CoV-2 infection and may lessen the likelihood of long-COVID-19 infection after a breakthrough illness in a vaccinated individual. In a group of almost 3,000 double-vaccinated persons who later were infected with SARS-CoV-2, the study indicated that vaccination decreased the probability of acquiring long-COVID-19 symptoms by about 41% [6]. Aside from immunization, it is unknown whether any existing COVID-19 medication has had an impact on the likelihood of long-term illness. A medicine that lessens the severity of the condition might theoretically reduce the probability of this occurring. However, long-COVID-19 is not usually linked to a severe acute illness; many patients with this syndrome have had asymptomatic or minor illness. Clinics for persons with long-COVID-19 are being established in several countries. Because persons with long-COVID-19 must rest for months at a period and require help during that time, much of the difficulty will be social and political [7]. Nonetheless, several researchers will investigate the effects of long-COVID-19 therapy. The hunt for a treatment that can minimize the risk of long--COVID-19 is still continuing. Heal-COVID, a big United Kingdom trial, is looking into two drugs that target the cardiovascular system in COVID-19 patients. Apixaban, an anticoagulant, and atorvastatin, a cholesterol-lowering drug that also helps to reduce inflammation in the blood vessels. PANORAMIC is a clinical experiment that aims to see if the antiviral molnupiravir affects the severity of COVID-19. While this is not the study's primary goal, researchers will gather data from individuals 3 and 6 months after treatment to see if the medicine has an effect on long-COVID-19 risk. Similarly, participants in the two Paxlovid studies will be followed for 6 months. These antiviral drugs are primarily used to treat COVID-19 patients who have just minor symptoms. Ayodeji Adegunsoye of the University of Chicago discovered an increase in the deposition of scar tissue in the lungs, known as fibrosis, long after acute infection in persons hospitalized with COVID-19 and requiring supplementary oxygen. He is presently studying an immunosuppressive medicine called sirolimus on these folks, which is commonly given to organ transplant recipients in the hopes of preventing fibrotic cell migration in the lungs [8]. Currently, methods of treating post--COVID-19 ailments are not known and they are treated in accordance with the drugs appropriate to the given disease entities. Special medication can arranged based on the outcomes of morphological studies and more extensive diagnostics focusing on certain diseases. Each phase of the diagnosis of a post-COVID-19 complication results from a different disease. For example, when cardiac function is tested, BNP is the recommended test, and when it is elevated, consider echocardiography. Biochemical tests play a very important role in this diagnosis. An example of this is the diagnosis of changes in the venous system, where even with the slightest suspicion of deep vein thrombosis, basic tests such as D-dimers should be performed, and then Doppler ultrasound should be performed at elevated levels. There are no effective therapies against long-COVID-19, despite the high effectiveness of vaccinations, therefore, in the face of the growing number of COVID-19 cases associated with the Omnicron BA.2 variant, use personal protective equipment should continue and extensive self-testing implemented to reduce the spread of COVID-19 in the population [9, 10].

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