

Cardiac complications in patients with COVID-19 infection

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COVID 19 infection in three phases: Phase I: Early infection, this phase is characterized with intrusion and direct invasion of COVID 19 into sensitive tissues. In this phase, virus is confronted only by the innate non-specific immunity. Symptoms are moderate in intensity. A more pronounced immune response is taking place, and in some cases a cessation of symptoms occurs. If the infection does not end here, a second phase develops. Phase II: pulmonary phase, pulmonary tissue invasion takes place and leads to direct tissue damage with added pulmonary vasodilation, enhanced endothelial permeability, leucocyte invasion as a cellular immune response to infection. This is clinically represented by further lung damage, and added burden on cardiovascular system. Phase III: Hyperinflammatory phase, this phase is presented as an escalation of immune response, which incorporates ARDS locally, acute myocardial damage, heart failure development, and systemic inflammatory response-multiorgan failure. This is complicated by secondary bacterial infection and enhanced intravascular coagulability. Arrhythmia is the most common, but also most benign cardiovascular complication in COVID 19 patients. Viral myocarditis, with heart failure elements, is a complication which has to be always thought of, especially in patients with unusually prolonged dyspnea. COVID 19 infection did not have a direct effect on coronary artery disease incidence, but on the other hand had a major effect on time to first contact of the patients with medical service and to the decision making in the treatment process.

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