of patients raises concerns about the widespread use of hydroxychloroquine, with or without azithromycin, to treat COVID-19 in settings where patients cannot be adequately monitored.

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COMMENT & RESPONSE

Myocardial Injury in COVID-19—Can We Successfully Target Inflammation?

To the Editor One of the most intriguing issues that rapidly arose in the clinical management of patients with coronavirus disease 2019 (COVID-19) was concurrent myocardial injury with or without corresponding symptoms. Therefore, we read with
great interest the work by Guo et al,1 which presented valuable data regarding the significance of cardiac involvement in patients with COVID-19. Remarkably, in this cohort of 187 patients, those without known underlying cardiovascular disease (CVD) but with myocardial injury had worse outcomes compared with those with underlying CVD but normal troponin levels.1 Furthermore, N-terminal pro–B-type natriuretic peptide kinetics suggested a potentially clinically significant association with cardiac function beyond merely biochemical myocardial injury.1

These findings, combined with the observed positive correlation of troponin level with C-reactive protein level, were interpreted as a potential indication that, among other mechanisms such as hypoxemia, the COVID-19–related inflammatory cascade could affect the myocardium directly. In study by our research group,2 inhibition of inflammation by colchicine was associated with significant cardioprotective effects (evaluated both by total troponin output and magnetic resonance imaging) in the context of acute myocardial infarction. Colchicine effects include inhibition of the NLR family pyrin domain containing 3 (NLRP3) inflammasome, which is presumed to be involved in ischemia-reperfusion injury.2 Interestingly, severe acute respiratory syndrome coronavirus (SARS-CoV) infection has been implicated with NLRP3 inflammasome activation;4 notably, SARS-CoV and SARS-CoV-2 are highly homologous in genome.1 On the basis of this pathophysiological premise and given the negative prognostic significance of COVID-19–related myocardial injury and other inflammation-related complications, we have proposed the use of colchicine in this context and are going to evaluate it in a prospective randomized study (ClinicalTrials.gov identifier: NCT04326790).

Undeniably, in view of the findings of Guo et al,1 the importance of effective myocardial injury prevention will be even greater in the subset of patients with COVID-19 and known CVD, who in this cohort presented with the highest mortality. The issue in question here is whether we will be able to do the obvious—that is, could we use treatments specifically targeting the COVID-19–associated inflammation storm to improve outcomes or even just buy time for our patients? “The true mystery of the world is the visible, not the invisible.”5

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Hence, we speculated that patients with COVID-19 might benefit from treatments specifically targeting the COVID-19-associated inflammation storm. Indeed, in addition to antiviral medications, numerous immune-modulating medications to regulate inflammatory response are currently being investigated in patients with COVID-19. In clinical practice, glucocorticoid is generally used to inhibit severe inflammation in high-risk patients. Besides, chloroquine, which has been used as an antimalarial agent, blocks virus infection by increasing the endosomal pH required for virus/cell fusion and has been demonstrated in vitro to have inhibitory activity in SARS-CoV-2. Yet, for patients with COVID-19 experiencing an inflammation storm, more evidence is needed to verify the effectiveness of glucocorticoid and immunosuppressive therapy. For us, it may be reasonable to triage patients with COVID-19 according to the presence of underlying CVD and evidence of myocardial injury for prioritized treatment and particularly for treatments specifically targeting on inflammation.

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