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# Atrial fibrillation in the COVID-19 era: simple bystander or marker of increased risk?

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**This commentary refers to 'Should atrial fibrillation be considered acardiovascular risk factor for aworse prognosisin COVID-19 patients?', by F. Sanchis-Gomar *et al.*, doi:10.1093/eurheartj/ehaa509.**

Myocardial involvement during COVID-19 is frequent, and subjects with cardiac disease are at a higher risk of myocardial injury and worse outcome.[1,2] As correctly pointed out by Sanchis-Gomar *et al.*,[3] atrial fibrillation (AF) represents a frequent pre-existing condition whose prognostic value is less known. Moreover, its prevalence and incidence during the clinical course of the hospitalization, as a possible manifestation of myocardial injury, are not yet well described. The mechanisms by which subjects with AF may be at increased risk are not known, but probably rely on both the cell entry mechanisms of the virus and the inflammatory host response (*Figure 1*). As for patients with other cardiac diseases, such as heart failure, it has been shown that prevalent AF is associated with higher levels of angiotensin-converting enzyme 2 (ACE2), the peptide through which the virus binds human cells.[2,4] ACE2 up-regulation may potentially increase the susceptibility to COVID-19.[2] Interestingly, ACE2 levels also correlate with left atrial structural and functional remodelling, which are substrates of increased susceptibility to AF.[4] On the other hand, one of the key pathways of COVID-19 is represented by the abnormal host inflammatory response. Importantly, systemic inflammation precedes and predicts AF in the community. Biomarkers of systemic inflammation and collagen turnover are elevated in AF patients and there is also a close association between inflammation of epicardial fat and the severity of electrical abnormalities in the adjacent atrial myocardium.[5] From this perspective, AF may reflect the existence of an increased inflammatory substrate favouring, and then amplified by, COVID-19 and leading to worse outcomes. Atrial myopathy is known to be an expression of such inflammation. Although more data and analyses from large population cohorts are needed to assess the prognostic role of AF, we highly recommend carefully treating AF patients for primary prevention of thrombo-embolic events and to identify those who may be more susceptible to new AF development. We therefore agree with Sanchis-Gomar *et al.* that, as for all patients with prevalent cardiac disease, AF patients should be considered vulnerable and at a higher risk of fatal outcome, needing careful clinical monitoring and treatment.

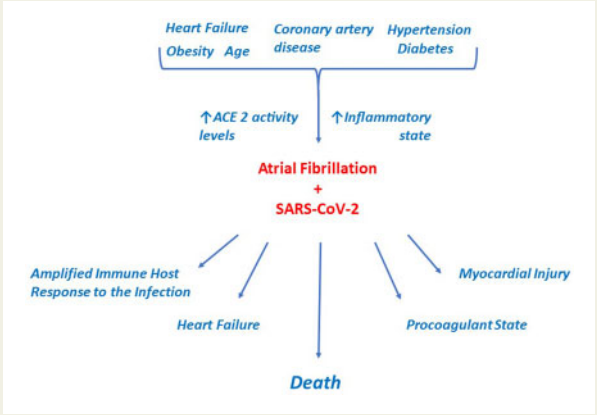


**Figure 1** Key determinants of atrial fibrillation (AF) and the impact of SARS-CoV-2 infection on the AF-related complications.

**Conflict of interest:** none declared.

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