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Letter to the Editor

Hyperlipidemia management during the COVID-19 pandemic: PCSK9 inhibitors to enhance the antiviral action of interferon

Dear Editor,

we immediately read with great attention and interest the significant and well-presented systematic review by Lee et al[1], analyzing the risk factors for COVID-19 mortality and reporting no association with higher risk of mortality in COVID-19 for hyperlipidemia, differently from other traditional cardiovascular risk factors such as diabetes mellitus and hypertension. Moreover, the use of ACE inhibitors or ARBs was associated with reduced risk of mortality, whereas no association was found for statins.

We appreciated this comprehensive study, and we would like to focus our comments on the endothelial function-enhancing effect of the PCSK9 inhibitors.

A beneficial role for an efficient lowering of plasma cholesterol level in hypercholesterolemic patients with COVID-19, and especially in patients with familial hypercholesterolemia (FH), has been suggested recently[2]. These patients suffer from endothelial dysfunction caused by a highly elevated serum low-density cholesterol (LDL-C) level, which is often accompanied by an elevated level of lipoprotein (a)[3]. Such double-inherited hyperlipidemic phenotype then leads to pro-thrombotic changes in endothelial cells, and the ensuing enhanced endothelial-platelet interactions are likely to be further enhanced during SARS-CoV-2 infection.

Moreover, recent data suggest that the benefit of PCSK9 inhibitors may not be limited to their endothelial function-enhancing effect alone[4,5]. The protection should be related to a decrease in the circulating PCSK9 level and the ensuing enhanced production of interferon beta.

By using a PCSK9 inhibitor the prognosis of COVID-19 should be improved via the efficient lowering of the LDL-C level and via preventing the reduction in the antiviral genes expression, notably those of the type I interferons.

In patients with COVID-19 and severe hypercholesterolemia, and consequently at high risk of an acute cardiovascular event, such as patients with FH, a single injection of a PCSK9 inhibitor may be considered, and the newly started drug therapy may be continued.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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