Editorial

Covid-19-cardiovascular-disease patients treating with nirmatrelvir/ritonavir inducing cardiovascular-drug interactions

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Low-dose ritonavir in combination with nirmatrelvir (NMVr), a SARS-CoV-2 (COVID-19)-produced-protease enzyme anti-retrovirals in delaying its hepatic metabolism and prolonging its duration of action[1] by inhibiting cytochrome P (CYP)3A4 and P-glycoprotein (P-gp),[2] whereas ritonavir inhibits CYP 450 enzymes, especially CYP3A4 and a lesser degree of CYP2D6.[1] The CYP 450 enzymes are responsible for several medication-oxidative metabolisms, whereas ritonavir induces other CYP 450 enzymes to a lesser degree, contributing to reduced-various-medication levels.[1] Primary inhibition and subsequent induction with time by the effect of ritonavir on P-gp can induce relevant cardiovascular (CV) drug-drug interactions (DDIs) in COVID-19-cardiovascular disease (CVD) patients.[2] The proposed decision-making algorithm is demonstrated in Figure 1.[3]

In conclusion, for prevention of CV-DDIs, discontinuation or dose adjustment during the NMVr treatment and 3-5 days after completion of treatment in COVID-19 patients.

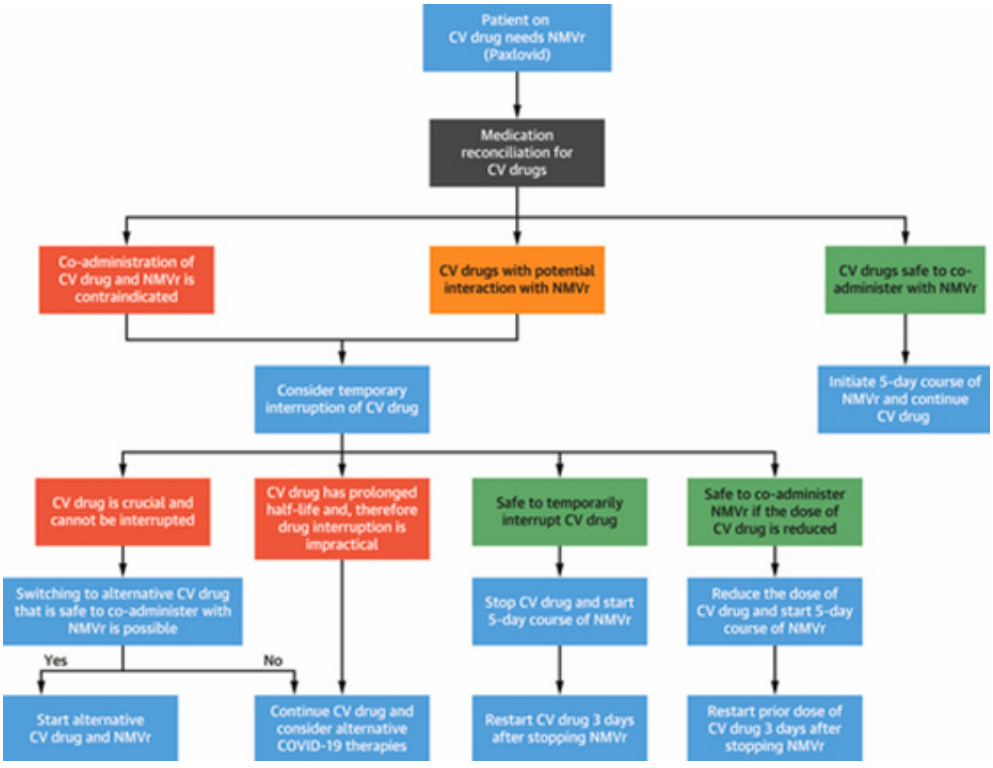

Figure 1 Demonstrating the algorithm for proposed decision-making for Covid-19-CVD patients with NMVR need.

Source: Cardiovascular drug interactions with nirmatrelvir/ritonavir in patients with COVID-19 : JACC review topic of the week. *JACC*. 2022.[3]

Acknowledgments

None.

Conflicts of interest

There are no conflicting interests declared by the authors.

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