Cardiovascular drugs and COVID-19 clinical outcomes: a living systematic review and meta-analysis

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Abstract

Aims: To continually evaluate the role of cardiovascular drugs in COVID-19 clinical outcomes. Methods: Eligible publications were identified from >500 databases on 1-Nov-2020. One reviewer extracted data with 20% of the records independently extracted/evaluated by a second reviewer. Results: Of 52,735 screened records, 429 and 390 studies were included in the qualitative and quantitative syntheses, respectively. The most-reported drugs were angiotensin-converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs) with ACEI/ARB exposure having borderline association with positive COVID-19 status (OR 1.14, 95% CI 1.00–1.31). Among COVID-19 patients, unadjusted estimates showed that ACEI/ARB exposure was associated with hospitalization (OR 1.76, 1.34–2.32), disease severity (OR 1.41, 1.27–1.56) and all-cause mortality (OR 1.22, 1.12–1.33) but not hospitalization length (mean difference -0.27, -1.36; 0.82 days). After adjustment, ACEI/ARB exposure was not associated with positive COVID-19 status (OR 0.92, 0.71–1.19), hospitalization (OR 0.93, 0.70–1.24), disease severity (OR 1.05, 0.81–1.38), or all-cause mortality (OR 0.85, 0.71–1.01). Similarly, subgroup analyses involving only hypertensive patients revealed that ACEI/ARB exposure was not associated with positive COVID-19 status (OR 0.93, 0.79–1.09), hospitalization (OR 0.84, 0.58–1.22), hospitalization length (mean difference -0.14, -1.65; 1.36 days), disease severity (OR 0.92, 0.76–1.11) while it decreased the odds of dying (OR 0.76, 0.65–0.88). A similar trend was observed for other cardiovascular drugs. However, the validity of these findings is limited by a high level of heterogeneity and serious risk of bias. Conclusion: Cardiovascular drugs are not associated with poor COVID-19 outcomes in adjusted analyses. Patients should continue taking these drugs as prescribed.

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