

PRESENTATION 5

What are the Effects of Hypertension as an Existing Comorbidity on Mortality Rate in Patients with COVID-19? A Systematic Review and Meta-Analysis

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Background

Coronavirus has spread throughout the world rapidly, and there is a growing need to identify host risk factors to identify those most at risk. There is a growing body of evidence suggesting a close link exists between an increased risk of infection and an increased severity of lung injury and mortality, in patients infected with COVID-19 who have existing hypertension. This is thought to be due to the possible involvement of the virus target receptor, ACE2, in the renin-angiotensin-aldosterone blood pressure management system.

Methods

A systematic literature search in several databases was performed to identify studies that comment on hypertension as an existing comorbidity, and its effect on mortality in hospitalized patients with confirmed COVID-19 infection. The results of these studies were then pooled, and a meta-analysis was performed to assess the overall effect of hypertension as an existing comorbidity on risk of mortality in hospitalized COVID-19 positive patients.

Results

A total of 12243 hospitalised patients were pooled from 19 studies. All studies demonstrated a higher fatality rate in hypertensive COVID-19 patients when compared to non-hypertensive patients. Meta-analysis of the pooled studies also demonstrated that hypertension was associated with increased mortality in hospitalized patients with confirmed COVID-19 infection (risk ratio (RR) 2.57 (95% confidence interval (CI) 2.10, 3.14), $p < 0.001$; $I^2 = 74.98\%$).

Key messages

Hypertension is associated with 157% increased risk of mortality in hospitalized COVID-19 positive patients. These results have not been adjusted for age, and a meta-regression of covariates including age is required to make these findings more conclusive.

