20044
Cardiovascular disease in critically ill COVID-19 patients

Doctor Lopes V[1]; Doctor Baptista J P[1]; Doctor Moreira N[1]; Professor Goncalves L[1]

Centro Hospitalar E Universitario De Coimbra, Coimbra, Portugal

Background/Introduction: It is now well known that patients with COVID-19 have a high prevalence of cardiovascular disease. COVID-19 is also associated with a substantial degree of cardiovascular involvement. However, the impact of cardiovascular disease (CVD) and cardiovascular risk factors on the natural history of COVID-19 is much less characterized.

Purpose: To characterize the prognostic impact of CVD and cardiovascular risk factors in COVID-19 patients admitted to an Intensive Care Unit (ICU).

Methods: We retrospectively analyzed patients consecutively admitted to an ICU with COVID-19, with a median follow-up of 10 months. Patients who either died or were discharged in the first 48 hours of admission were excluded.

Three groups were identified: (1) established CVD – presence of either heart failure, coronary artery disease and/or peripheral artery disease; (2) at higher risk of CVD – arterial hypertension, dyslipidemia, diabetes mellitus and/or smoking, in the absence of established CVD; and (3) at lower risk of CVD – i.e. none of the above.

Groups were compared, with special interest regarding in-hospital mortality, duration of mechanical ventilation, length of hospitalization. Global mortality (in-hospital and during follow up), and re-hospitalization were also compared. To compare survival, a Kaplan-Meier and multivariate Cox regression analysis were performed.

Results: Overall, 219 patients were identified, mean age was 62.1 ±11.9 years, 67.1% were male, 71 (32.4%) died in the ICU, 78 (35.6%) died during follow-up, and 14 (6.4%) were re-hospitalized.

30 patients (13.7%) had established CVD, 144 (65.8%) were at higher risk of CVD, and 45 (20.5%) were at lower risk of CVD. Patients with established CVD were older than patients at higher risk of CVD, and both were older than patients at lower risk (68.0 ±8.4 vs 62.0 ±11.3 vs 56.0 ±13.0 years, p <0.001). ICU mortality was 56.7%, 30.6%, and 22.2% for patients with established CVD, at higher risk of CVD, and at lower risk of CVD, respectively (p = 0.005). Re-hospitalization rate, ICU length of stay, and duration of mechanical ventilation were similar among groups.

Patients with established CVD were at significantly higher risk of ICU mortality (HR 2.42, 95% CI 1.08-5.46, p = 0.033), and higher risk of global mortality (HR 2.16, 95% CI 1.03-4.52, p = 0.042), compared to patients at higher and lower risk of CVD; in patients at higher and lower risk of CVD, ICU and global mortality was similar. In multivariate Cox regression, after adjusting for age and risk scores, established CVD was not an independent predictor of mortality. Kaplan-Meier survival curves are presented in figures 1 and 2.

Conclusion(s): Almost 80% of patients admitted to an ICU with COVID-19 had established or were at higher risk of CVD. Patients with established CVD have a higher risk of death, although its presence is not an independent predictor of death.

Mortality in ICU

Log rank test: p = 0.022