9.6 - Clinical

40525
Prevalence and impact of dysrhythmias in COVID-19 intensive care patients

Doctor De Almeida Fernandes D[1]; Doctor Guimaraes J[1]; Doctor Costa P[2]; Doctor Monteiro E[1]; Doctor Costa G[1]; Associate Professor Antonio N[1]; Professor Martins P[2]; Professor Goncalves L[1]

Coimbra Hospital and University Center, Cardiology, Coimbra, Portugal
Coimbra Hospital and University Center, Intensive Care Medicine, Coimbra, Portugal

Background: The COVID-19 pandemic has had a dramatic impact on clinical practice, amounting to more emergency department and intensive care unit (ICU) admissions. Due to their frequent multiple comorbidities, management in the ICU is challenging. Early studies suggest that cardiac injury is frequent in hospitalized patients with COVID-19, and it is plausible that these patients have a higher risk of cardiac dysrhythmias.
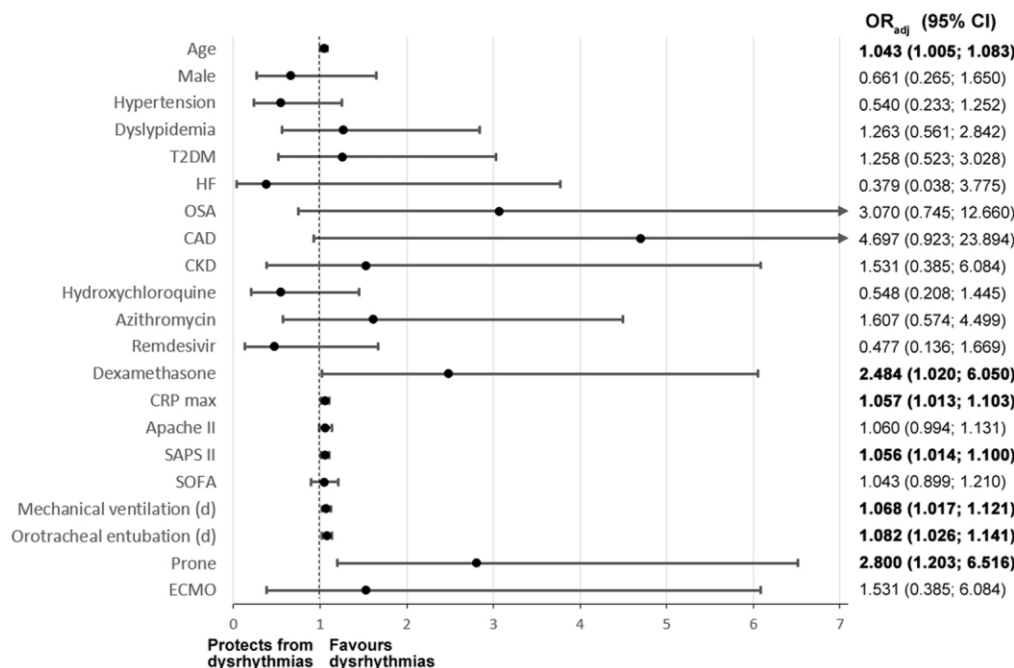
Purpose: To determine the prevalence of dysrhythmias in ICU patients with COVID-19 pneumonia, identify major predictors and determine the impact on in-hospital mortality.

Methods: A retrospective study of 98 consecutive patients with COVID-19 Pneumonia admitted to the ICU of a tertiary hospital in 2020. The main outcome was dysrhythmias (including significant bradycardia, high/slow ventricular rate or new-onset atrial fibrillation (AF) or atrial flutter, other supraventricular tachycardias, ventricular tachycardia and ventricular fibrillation). Significant bradycardia was defined as heart rate lower than 40 or need of treatment. Sociodemographic variables and clinical data were retrieved for each patient, severity scores at admission (Apache II, SOFA and SAPS II), number of days on mechanical ventilation or high-flow oxygen and placement on Venovenous Extracorporeal Membrane Oxygenation (ECMO) or prone position were recorded. Statistical comparison was made between groups, including logistic regression adjusting for confounding variables.

Results: The most frequent arrhythmia was significant sinus bradycardia (28, 28.5%) followed by high ventricular rate AF (14, 14.2%). Patients who had dysrhythmias were older (66.24 $\pm$ 10.13 vs 60.85 $\pm$ 12.69 years, p 0.024), more severe (SAPS II score 42.55 $\pm$ 11.08 vs 35.98 $\pm$ 11.26, p 0.006), had more atrial fibrillation (AF) (p 0.022), had higher maximum C-reactive protein (mCRP) (6.56 $\pm$ 2.68 vs 6.24 vs 2.86, p 0.009), were mechanically ventilated for a longer time (15.64 $\pm$ 13.18 vs 8.92 $\pm$ 8.85 days, p 0.004), had longer intubation time (14.52 $\pm$ 9.39 vs 8.70 $\pm$ 8.21 days, p 0.002) and had higher usage of dexamethasone (p 0.042) and prone position (p 0.016).

When adjusted for confounding variables, prone was the most significant predictor (OR 2.800; 95% CI 1.203-6.516) followed by use of dexamethasone (OR 2.484; 95% CI 1.020-6.050). Days intubated, days on mechanical ventilation, age, mCRP and SAPS II on admission were also predictors of dysrhythmia. Regarding mortality, patients with arrhythmic events had a tendency for greater in-hospital death (OR 2.440; 95% CI 0.950-6.310; p 0.065).

Conclusions: COVID-19 ICU patients are a subset of patients at risk of cardiac arrhythmias. Use of prone position was the main contributor to these events, but clinical history, severity and treatment may also play an important role. Efforts must be made to optimize ventilatory support and treatment in order to reduce the risk of dysrhythmias.

Predictors of dysrhythmias