9.6 - Clinical

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Tachydysrhythmias in patients admitted with COVID-19 pneumonia: prevalence and impact on in-hospital mortality

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Background: The COVID-19 pandemic has shifted tremendously the paradigm of hospital care and treatment of cardiovascular (CV) patients. According to most recent evidence, due to its multisystemic impact, COVID-19 may lead to an increased risk of cardiac arrhythmias with subsequently increased morbimortality.

Purpose: Determine the prevalence of tachyarrhythmias in patients admitted with COVID-19, possible predictors and impact on in-hospital mortality.

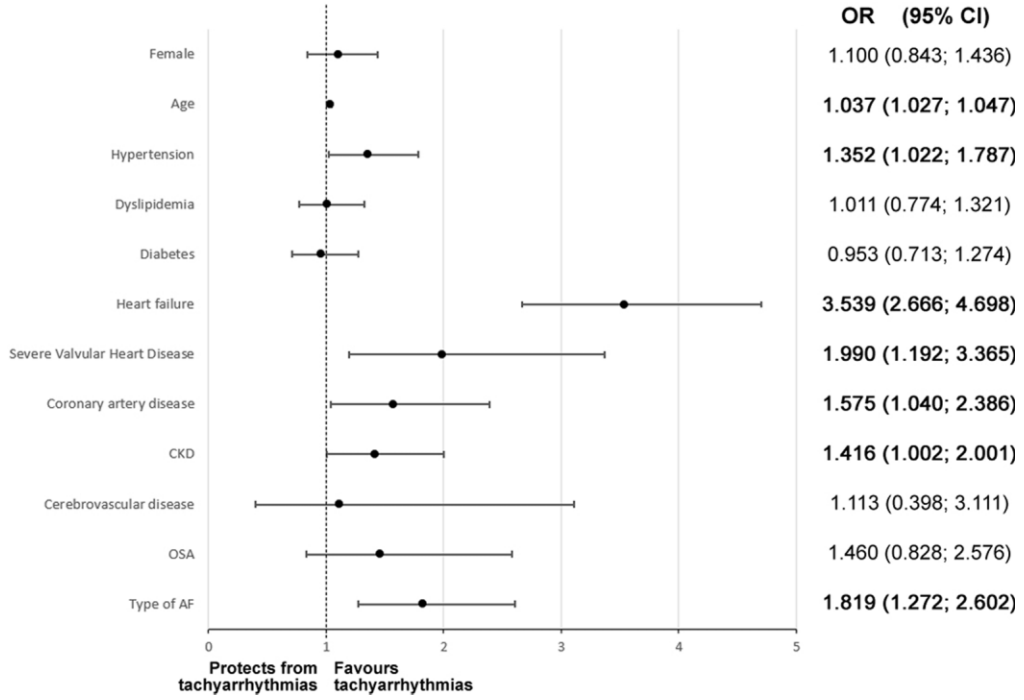
Methods: A retrospective study of 3475 consecutive patients with COVID-19 pneumonia admitted to our hospital between February 2020 and November 2021 were included. The main outcome was tachyarrhythmias (high ventricular rate (HVR) or new-onset atrial fibrillation (AF), HVR or new-onset atrial flutter (AFL), other supraventricular tachycardias (SVT), ventricular tachycardia (VT) and ventricular fibrillation (VF)). Secondary outcome was in-hospital mortality. Sociodemographic variables and clinical data were recorded. Statistical comparison was made between groups, including logistic regression to determine odds ratios (OR).

Results: A total of 215 patients presented HVR AF (6.31%), 79 of which with new-onset AF (36.74%). 8 patients had HVR AFL (0.23%), 5 VT (0.15%), 4 VF (0.12%) and only 3 patients had a SVT identified (0.09%). Patients with tachyarrhythmias were significantly older (77. 74 $\pm$ 11.25 68.94 $\pm$ 17.51 years, p <0.001) and had more hypertension (p 0.034), heart failure (HF) (p <0.001), severe valvular heart disease (VHD) (p 0.007), coronary artery disease (CAD) (p 0.031), chronic kidney disease (CKD) (p 0.048) and paroxysmal AF (if previously diagnosed (p 0.001). There were no significant differences regarding gender, dyslipidemia, diabetes, cerebrovascular disease and obstructive sleep apnoea (OSA).

Patients with HF had the highest risk of tachyarrhythmia (OR 3.539; 95% CI 2.666-4.698; p <0.001), followed by severe VHD (OR 1.990; 95% CI 1.192-3.365; p 0.009) and CAD (OR 1.575; 95% CI 1.040-2.386; p 0.032). Older patients or patients with hypertension or CKD were also at an increased risk. Also of note, patients previously diagnosed with paroxysmal AF were more likely to have episodes of HVR AF than the ones with persistent or permanent AF (OR 1.819; 95% CI 1.272-2.602; p 0.001)

Regarding the secondary outcome, patients with tachyarrhythmias during hospital stay had an odd almost 3 times higher of death (OR 2.820; 95% CI 2.151-3.695; p <0.001).

Conclusions: Tachyarrhythmias is a common complication in COVID-19 patients during hospital stay that is significantly linked to higher in-hospital mortality. Patients presenting with high CV disease burden are at particularly significant risk and should be carefully managed.



Odds-ratio of tachyarrhythmias