

# Arrhythmias in Patients with Coronavirus Disease 2019 (COVID-19) in Wuhan, China: Incidences and Implications

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## Abstract

Background: Coronavirus disease 2019 (COVID-19) continues to impact populations around the globe. Information regarding the incidences and implications of arrhythmias in COVID-19 is limited. Methods: A total of 463 patients with confirmed COVID-19 and at least one electrocardiogram from February 1 to March 19, 2020 in Wuhan Union Hospital West Campus were enrolled in the study. Results: 396 of 463 patients (85.5%) experienced arrhythmias. Sinus arrhythmias were presented in 69.1%, atrial arrhythmias in 10.2%, junctional arrhythmias in 0.2%, ventricular arrhythmias in 3.5%, and conduction block in 7.3%. Sinus tachycardia (307 [66.3%]) was the most frequently observed type of arrhythmias. Kaplan-Meier curves showed that patients with vs those without arrhythmias had higher mortality, both during the time from symptom onset ( $p=0.002$ ) and from admission to follow-up ( $p=0.003$ ). Arrhythmias were presented more among patients in critical group than in non-critical group (96.6% vs 81.7%;  $p<0.001$ ), also in died group than in discharged group (100.0% vs 83.4%;  $p=0.001$ ). Sinus tachycardia, sinus bradycardia and atrial arrhythmias could predict severity and mortality, their odds ratios (OR) were 2.91 (95% confidence interval [CI] 1.66 to 5.12), 4.82 (95% CI 1.91 to 12.18), 6.70 (95%CI 3.27 to 13.70) respectively for severity, and were 2.13 (95% CI 1.08 to 4.18), 3.95 (95% CI 1.47 to 10.63), 4.36 (95% CI 2.05 to 9.26) respectively for mortality. Additionally, ventricular arrhythmias (OR 5.38, 95% CI 1.69-17.17) were high-risk factors for hospitalized exacerbations. Conclusions: Sinus tachycardia was the most common arrhythmia. Arrhythmias were significantly associated with severity and mortality in COVID-19 patients.

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