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A novel study on SARS-COV-2 virus associated bradycardia as a predictor of mortality-retrospective multicenter analysis

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SARS-CoV2 has affected more than 73.8 million individuals. While SARS-CoV2 is considered a predominantly respiratory virus, we report a trend of bradycardia among hospitalized patients, particularly in association with mortality. The multi-center retrospective analysis consisted of 1053 COVID-19 positive patients from March to August 2020. A trend of bradycardia was noted in the study population. Absolute bradycardia and profound bradycardia was defined as a sustained heart rate <60 BPM and <50 BPM, respectively, on two separate occasions, a minimum of 4 h apart during hospitalization. Each bradycardic event was confirmed by two physicians and exclusion criteria included: less than 18 years old, end of life bradycardia, left AMA, or taking AV Nodal blockers. Data was fetched using a SQL program through the EMR and data was analyzed using SPSS 27.0. A logistic regression was done to study the effect of bradycardia, age, gender, and BMI on mortality in the study group.

24.9% patients had absolute bradycardia while 13.0% had profound bradycardia. Patients with absolute bradycardia had an odds ratio of 6.59 (95% CI [2.83–15.36]) for mortality compared with individuals with a normal HR response. The logistic regression model explained 19.6% (Nagelkerke R²) of variance in the mortality, correctly classified 88.6% of cases, and was statistically significant $\chi^2(5)=47.10$, $p<.001$. For each year of age > 18, the odds of dying increased 1.048 times (95% CI [1.25–5.27]). The incidence of absolute bradycardia was found in 24.9% of the study cohort and these individuals were found to have a significant increase in mortality.

Biography

Sabina Kumar has a BS and MS in Biomedical Engineering from Case Western Reserve University and is currently a 3rd year internal medicine resident at Hemet Global Medical Centre in Southern California. She will be starting her cardiology fellowship at McLaren Macomb/Michigan State University Program this July. Her interest includes the intersection of biomedical engineering and cardiology as well women's cardiovascular health.