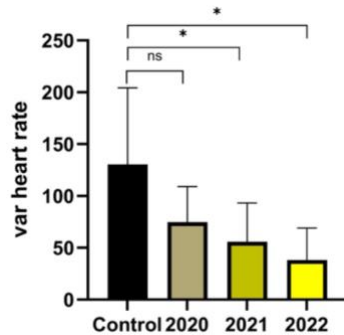


Heart Rate Regulation in Long-Covid-19 Patients According to the Year of Infection

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The sequelae in long-COVID-19 patients encompass a wide range of persistent symptoms affecting various body systems, including respiratory, neurological, and cardiovascular. Understanding how heart rate is regulated becomes crucial in assessing the virus's impact on the cardiovascular system and in developing effective treatment strategies. In this regard, the Tilt Test stands out as a valuable tool for investigating sympathetic / parasympathetic system (SPS) disorders through heart rate variability (HRV), especially in patients at different disease stages compared to a control group (CG).



This study aimed to examine HRV parameters during the Tilt Test in 30 long-COVID-19 patients, dividing them into groups according to the year of infection (2020, 2021, and 2022), along with a CG (15). HRV parameters in the time and frequency domains were analyzed. The results of the Tilt Test revealed significant variations ($p < 0.05$) in HR variance between the groups over the years of infection. Patients infected in 2022 showed a greater discrepancy compared to the control group, while those in 2020 exhibited closer proximity. The 2021 group demonstrated HR variance closer to the CG, but the 2022 group revealed a greater discrepancy, indicating potential disturbances in the SPS, as evidenced by the LF/HF ratio behaving similarly to HR variance ($p < 0.05$). This study underscores the necessity of considering changes in infection years and emphasizes the significance of extended monitoring to fully grasp the cardiac implications of the virus on long-COVID-19 patients. Despite limitations such as limited representativeness of the affected population and restricted data over time, it suggests the necessity for further research for a comprehensive understanding of the virus's long-term effects on the autonomic nervous system and cardiovascular health.

Evolution of the infected participant in 2020, 2021, 2022 in relation to the CG.