Impact of COVID-19 on mechanical complications in ST elevation myocardial infarction

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Background: Mechanical complications (MC) give a poor prognosis for ST elevation myocardial infarction (STEMI). Its prevalence had decreased in the era of primary angioplasty, at the expense of free wall rupture (FWR).
Purpose: To analyse the prevalence of post-STEMI MC for two periods, before and after the COVID-19 pandemic.
Methods: Unicentric prospective registration of patients with STEMI admitted between January-2018 and December-2021. They are classified into two groups according to the onset of the pandemic by COVID-19: Pre-COVID: January-2018 to December-2019, and Post-COVID: January-2020 to December-2021. The prevalence of post-STEMI MC is analysed, including ventricular septal rupture (VSR), papillary muscle rupture (PMR) and FWR, and 30-day mortality.
Results: 1507 consecutive patients with STEMI (Pre-COVID n=775, Post-COVID n=732) are included. Age 62.9 years vs 63.3 years (p=0.5097). Men 78.1% Vs 79.5% (p=0.493). No differences in cardiovascular risk factors, previous heart infarction or anterior wall STEMI. Primary angioplasty was similar in both groups (92%). The Post-COVID group has a higher prevalence of Killip>I (21.7% vs 17.2% p=0.025) and LVEF $\leq$40% (27.2% vs 20% p=0.001), and longer symptom onset to balloon dilatation interval (316 min vs 257 min p=0.0004). MC are most developed in Post-COVID (2.6% vs 1.2% p=0.039), at the expense of FWR (1.91% vs 0.3% p=0.001). No significant changes in VSR and PMR prevalence or 30-day mortality. Multivariate analysis identifies the independent predictors of FWR: Age (OR 1.05, p=0.024), Primary angioplasty (OR 0.09, p<0.001), and Post-COVID (OR 6.8, p=0.013).
Conclusions: The COVID-19 pandemic is independently associated with a higher prevalence of FWR, probably due to delayed reperfusion.