

**653 The impact of the COVID-19 pandemic on hospitalizations for acute myocardial infarction: the experience of the Clinical Cardiology Unit, University Hospital of Cagliari**

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**Aims:** During the COVID-19 pandemic, hospitalization rates for acute myocardial infarction (AMI) decreased worldwide. The aim of the study is to evaluate the impact of the COVID-19 pandemic on the admission rate for AMI to our academic hospital, to monitor the trend during the reopening phase and to evaluate if whether changes in air pollution may have influenced hospitalization rates for AMI in Sardinia and Northern Italy.

**Methods and results:** We compared the admission rate for AMI in our department and, by analysing the density of nitrogen dioxide ( $1/\text{cm}^2$ ), the state of air pollution in Sardinia and Northern Italy in different periods: the national lockdown (9 March-3 May 2020), the 8 weeks before the start of the lockdown, the 8 weeks after the end of the lockdown and the corresponding time period in 2019 (from 9 March to 3 May 2019). A marked decline in AMI admissions was observed during the lockdown period in comparison with the 8 weeks before the start of the lockdown ( $-47\%$ , 95% CI: 37.5-56.7,  $P < 0.0001$ ) and the corresponding period in 2019 ( $-52.8\%$ , 95% CI: 43-65,  $P < 0.0001$ ). There was a significant reduction in hospitalizations for NSTEMI during the lockdown period in comparison with the 8 weeks before the start of lockdown ( $-71.8\%$ , 95% CI: 62.3-79.6,  $P < 0.0001$ ) and the corresponding time period in 2019 ( $-70.5\%$ , 95% CI: 60.9-78.5,  $P < 0.0001$ ). Similar trends were seen in the group of STEMI patients, but the fall in admissions was less than that of NSTEMI patients. During the lockdown period, the hospitalizations for STEMI fell by 31.5% (95% CI: 23.2-41.4,  $P = 0.19$ ) and 49% (95% CI: 39.4-58.6, 47 vs. 24 admissions,  $P = 0.009$ ) in comparison to the 8 weeks before the start of lockdown and the corresponding period in 2019, respectively. We observed a rise in AMI admissions during the 8 weeks after the lockdown ( $+47\%$ , 95% CI: 37.5-56.7,  $P < 0.0001$ ), for both NSTEMI ( $+71.2\%$ , 95% CI: 61.7-79.1,  $P < 0.0001$ ) and STEMI ( $+33.4\%$ , 95% CI: 24.9-43.1,  $P = 0.15$ ). In Sardinia the relative change in nitrogen dioxide density during the time of lockdown was negligible with little or no impact on the environment ( $-19\%$ , 95% CI: 12.5-27.7,  $P = 0.65$ ), if we consider it occurred within a range of very low values of nitrogen dioxide ( $11.5 \pm 3$  e  $14.1 \pm 5 \mu\text{mol}/\text{m}^2$ ). In contrast, in Northern Italy during the lockdown there was a marked decrease in  $\text{NO}_2$  concentration in comparison with the 8 weeks before the start of lockdown ( $-53\%$ , 95% CI: 43-62.4,  $25.1 \pm 16.2$  e  $54.2 \pm 43.5 \mu\text{mol}/\text{m}^2$ ,  $P < 0.0001$ ).

**Conclusions:** Since air pollution did not change substantially in our region, the environment factor cannot explain the decline in the number of admissions for AMI we recorded during the lockdown. Fear of contagion is the most plausible reason for the drop of hospitalizations for AMI during the lockdown period.