Where have the STEMIs gone during COVID-19 lockdown?

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The coronavirus disease (COVID-19) outbreak has threatened to overwhelm European healthcare systems, potentially overshadowing other emergencies including ST-segment elevation myocardial infarction (STEMI) [1}.

We analyzed the impact of the COVID-19 national lockdown on STEMI care in 3318 patients enrolled in the prospective France PCI registry between 15 January 2019 and 14 April 2020. The registry prospectively follows all patients undergoing coronary angiography at 12 interventional cardiology centers located in the western part of France which is coincidentally the area least impacted by the outbreak. The ethical aspects, basic methodology and rationale for the registry have been already described and published (2).

Comparing monthly admission rates in the pre-COVID-19 group (enrolled before 15 March 2020, the date of national lockdown announcement) to rates post-lockdown, there was a 18 % drop in admissions for STEMI, from a median of 224 per month pre-COVID-19 to 184 per month in the COVID-19 group ($p<0.001$) (Figure) and spectacular drop of 25% between the month of March 2019 and March 2020 ($p<0.003$).

The steep decline was found for both acute (<24 hrs) and late presentation (>24 hrs) STEMI.

This is the first structured analysis of large prospective European registry data to confirm a major reduction in STEMI admissions during the COVID-19 lockdown. Our results are in line with a recently published analysis from STEMI activations for 9 high-volume US centers, although the cut-off date in that study was not a lockdown date but March 1st, the date when US social life and medical operations were becoming significantly affected [3]. Physician surveys have also indicated a decline in the incidence in stroke admissions [4]. The reasons for these phenomena are unclear. One explanation may be patients' fear of coming to the hospital or disturbing busy caregivers, especially in case of atypical or mild STEMI clinical presentation. Other hypothetical reasons are reduced air pollution, better adherence to treatment, limited physical activity or absence of occupational stress during lockdown. Although all are possible it is difficult to see how they can account for the sudden and sharp drop observed in our multicenter cohort. A dramatic reduction in mortality from circulatory disease was observed during World War II [5] suggesting a possible temporary "stunning" or "pause" of some diseases in extraordinary situations such as war or a worldwide health crisis. Yet the missing STEMIs seem out of all reasonable proportion and the answer to the question "where have the STEMIs gone" will be difficult to elucidate.

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Total number of STEMI per month

STEMI<24h >24h **2019**

STEMI<24h >24h **2020**