## Correspondence

## Understanding the effects of COVID-19 on health care and systems

In The Lancet Public Health, Jules Mesnier and colleagues<sup>1</sup> used data from a French multicentre registry and observed a decrease in hospital admissions for acute myocardial infarctions following the lockdown, irrespective of patient characteristics and regional prevalence of COVID-19. Such findings are of high interest to clinicians and policy makers who are willing to improve the resilience of health systems and hospitals during pandemics or similar acute shocks, including extreme climatic events.

Possible explanations for this decrease in acute myocardial infarctions are numerous and remain conjectural. Other studies<sup>2-5</sup> have found similar results, but the underlying reasons remain unclear and are sometimes contradictory. To address these challenges, we must better understand the real limits and weaknesses of our health systems. To disentangle this complex array of interrelated causal factors, we suggest the following methodological approaches.

First, the timeframe of studies should be extended to the months following the end of the lockdown, to assess whether the decrease in hospitalisations persists over time. Additionally, comparison with the same months of previous years would account for the seasonality of acute myocardial infarction admissions.

Second, detailed data describing in-hospital management, such as time from hospital admission to primary percutaneous coronary intervention, could help us understand the organisational impact of both COVID-19 and the lockdown.

Third, the COVID-19 pandemic has been shown to increase preexisting gender-based,<sup>2</sup> geographic, and socioeconomic disparities in access to health care.<sup>6</sup> It is crucial to systematically document the place of residence and socioeconomic status of patients with COVID-19.

Finally, extending the analysis to admissions for other acute vascular diseases, such as stroke,<sup>7</sup> would bring additional valuable insights into the respective roles of generic versus disease-specific factors, and into the role of local organisations and the importance of clinical features at admission. Such work is underway and we hope it provides useful explanations with wide pragmatic translations.

FR reports grants, personal fees, and non-financial support from Air Liquide, grants and personal fees from Abbott, Novartis, and Astra Zeneca, and personal fees from Vifor, Servier, Abiomed, Zoll, Medtronic, Resmed, LVL, Eole, Pfizer, Novonordisk, and Mylan, outside the submitted work. GM and CA declare no competing interests.

Copyright © 2020 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY 4.0 license.

## Grégoire Mercier, Caroline Arquizan, \*François Roubille

## f-roubille@chu-montpellier.fr

Public Health Department (GM), Department of Neurology (CA), and Department of Cardiology (FR), Montpellier University Hospital, 34295 Montpellier cedex 5, France; and CEPEL (GM) and PhyMedExp (FR), Université de Montpellier, INSERM, Centre national de la recherche scientifique, Montpellier, France

- Mesnier J, Cottin Y, Coste P, et al. Hospital admissions for acute myocardial infarction before and after lockdown according to regional prevalence of COVID-19 and patient profile in France: a registry study. Lancet Public Health 2020; 5: 536–42.
- De Rosa S, Spaccarotella C, Basso C, et al. Reduction of hospitalizations for myocardial infarction in Italy in the COVID-19 era. Eur Heart J 2020; **41:** 2083–88.
- 3 Garcia S, Albaghdadi MS, Meraj PM, et al. Reduction in ST-segment elevation cardiac catheterization laboratory activations in the United States during COVID-19 pandemic. J Am Coll Cardiol 2020; 75: 2871–72.

4

5

- Solomon MD, McNulty EJ, Rana JS, et al. The Covid-19 pandemic and the incidence of acute myocardial infarction. N Engl J Med 2020; **383**: 691–93.
- Huet F, Prieur C, Schurtz G, et al. One train may hide another: acute cardiovascular diseases could be neglected because of the COVID-19 pandemic. Arch Cardiovasc Dis 2020; **113**: 303–07.
- Abrams EM, Szefler SJ. COVID-19 and the impact of social determinants of health. Lancet Respir Med 2020; **8:** 659–61.

Sharma M, Lioutas VA, Madsen T, et al. Decline in stroke alerts and hospitalisations during the COVID-19 pandemic. Stroke Vasc Neurol 2020; published online Aug 27. https://doi. org.10.1136/svn-2020-000441.



See Articles e536