Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

European Journal of Internal Medicine 110 (2023) 99–100

Contents lists available at ScienceDirect

European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Letter to the Editor

Evolution of the SARS-CoV-2 epidemic: From genomic surveillance to new health needs

Dear editor

We would like to thank Mattiuzzi *et al.* [1] for their comments on our study in which we compared the characteristics of the patients hospitalised at our coronavirus disease 2019 (COVID-19) referral centre in Milan, Italy, during the last three waves of COVID-19, and showed a trend towards a reduction in the number of severely ill COVID-19 patients and a progressive increase in the proportion of SARS-CoV-2 positive patients admitted for reasons other than COVID-19 (up to 40% in July 2022, when SARS-CoV-2 Omicron BA.2 and BA.5 began to spread in Italy) [2]. Using publicly available surveillance data concerning COVID-19 cases in the general Italian population, Mattiuzzi *et al.* clearly showed that the clinical severity of COVID-19 significantly changed over time, with a decrease in the percentage of patients requiring hospitalisation and intensive care during the omicron BA.1 and BA.2 period [1]. However, they also seem to suggest that late 2022 saw a possible inversion of this positive trend because there was an increasing prevalence of cases due to the highly transmissible Omicron BA.5 variant and newly emerging Omicron sub-variants such as BQ1 and XBB, all of which are characterised by their ability to evade the antibody response elicited by natural infection and/or vaccination [3].

We would like to point out that this does not necessarily increase the risk of a rebound in the burden of severe COVID-19. There is evidence indicating that the protection induced by the vaccine in the Omicron era is more effective against severe outcomes than against infection because SARS-CoV-2 specific T cell responses (particularly the response of CD8+ cytotoxic T cells) are less affected by variations in the SARS-CoV-2 spike region and will probably continue to provide protection against severe disease [4–6]. Genomic sequencing data from a recent national survey (10 January 2023) indicate that Omicron BA.5 has become by far the most prevalent variant (86.3%), with the BQ.1.n sub-lineages accounting for 65% (including BQ.1.1 at 36.7%), followed by XBB.1.5 (12%) [7], but the weekly COVID-19 surveillance reports updated to 9 January 2023 do not indicate a corresponding increase in hospitalisation or ICU admission/occupancy [8]. These findings seem to be consistent with the regional immune picture following previous Omicron waves and the extent of COVID-19 vaccination coverage [9]. As of 22 January 2023, more than 40 million people aged >12 years in Italy (~84% of the total population) have completed the standard vaccination cycle against COVID-19 and received one booster dose, including almost 96% of the people aged ≥80 years, the age group most vulnerable to severe COVID-19 [10,11]. Furthermore, there is currently an active campaign aimed at encouraging vulnerable people to receive updated booster doses of COVID-19 vaccine.

Nevertheless, as there are still no data concerning the clinical impact of the newly emerging SARS-CoV-2 Omicron variants and sub-lineages, it is crucial to continue monitoring the evolution of the SARS-CoV-2 epidemic, health sufficiency indicators, and the characteristics and health needs of hospitalised SARS-CoV-2 patients in order to clarify the public health implications of the circulating viral variants. This will allow the implementation of measures to ensure the prompt and appropriate care of patients with COVID-19 and those presenting with clinical conditions other than COVID-19 without giving rise to alarmism.

Ethics approval statement

Not applicable.

Patient consent statement

Not applicable.

Funding statement

This study was not funded.

Authors' contributions

AG and ALR prepared a preliminary draft of the letter, which was critically reviewed by LO, GR and SA. All of the authors have read and approved the final manuscript.

Data availability statement

Not applicable.

Declaration of Competing Interest

The authors have no conflict of interest relating to this study. AG has received consultancy fees from Mylan and Jansen, and non-financial educational support and a research grant from Gilead sciences and ViiV Healthcare. GR has received grants and fees for speaker bureaux, advisory boards and CME activities from BMS, ViiV, MSD, AbbVie, Gilead, Janssen and Roche. SA has received support for research activities from Pfizer and Merck Sharp & Dome. The other authors have nothing to declare.

Acknowledgments

Not applicable.

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Received 30 January 2023; Accepted 7 February 2023
Available online 9 February 2023

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