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.

Response

To the Editor:

Rouzé et al underline that the percentage of hospital-acquired infections (HAIs) and ventilator-associated pneumonia (VAP) caused by multidrug-resistant organisms (MDROs) in our study population (35%)[1] is significantly higher compared with that reported in their recent multinational European report (23%)[2]. However, these two studies cannot be compared easily for a number of methodologic differences.

Although we included every consecutive patient with COVID-19 who was admitted to eight hub ICUs, in the study by Rouzé et al, the SARS-CoV-2 cohort consisted of consecutive patients admitted from the beginning of the pandemic and up to 20 patients in each center. It is clear that the first 20 patients do not represent precisely the overall population of patients admitted during the pandemic. The more patients are admitted to a single ICU, the higher the risk of MDROs acquisition for the newly admitted patients.

Also, in our study, we included each infectious episode; Rouzé et al analyzed only the first ventilator-associated tracheobronchitis/VAP episode, thus possibly underestimating the infectious rate and the occurrence of MDROs after the first VAP episode. It is well-known that the incidence of MDROs increases overtime during an ICU stay and is higher in secondary infections.

Regarding the incidence of HAIs and MDROs before the pandemic in the participating centers, this is under continuous scrutiny from an independent, open-access authority since 2011.[3] In the 2019 report, the incidence of VAP was 9.8 (95% CI, 7.4 to 8.3) per 1000 ICU patient-days, which is significantly lower than that reported in our paper.

The causative explanation for the high incidence of HAIs in our population was beyond the scope of our study, which was designed merely to be descriptive and did not allow a comparison with historical cohorts. Suboptimal adherence to infection control policies and selective pressure of antibiotics during the study period could be, at least in part, the cause. Yet, other explanations directly related to COVID-19 pathophysiologic condition can be hypothesized. The impaired immune function of patients with severe COVID-19 likely plays an essential role.[4] Also, microbiome dysbiosis has been linked to immune hyper-response and inflammation in patients with COVID-19,[5] and alterations in gut-lung axis may be involved in the pathogenesis of VAP. Yet, it is worth noting that we have been dealing with the worst pandemic ever documented in modern medicine, which led us to suddenly adapt our clinical practice. Result of studies performed during such unprecedented scenario should be contextualized, and causative relationships should be taken with cautions.

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References

1. Grasselli G, Scaravilli V, Mangioni D, et al. Hospital-acquired infections in critically-ill COVID-19 patients. *Chest*. 2021;160(2):454-465.
2. Rouzé A, Martin-Loeches I, Povoa P, et al. Relationship between SARS-CoV-2 infection and the incidence of ventilator-associated lower respiratory tract infections: a European multicenter cohort study. *Intensive Care Med*. 2021;47(2):188-198.
3. Istituto Mario Negri, GiViTI group, MargheritaPROSAFE Project. Annual reports of infections in the intensive care units. Accessed May 4, 2021, https://giviti.marionegri.it/portfolio/prosafe.
4. Laing AG, Lorenc A, Del Molino Del Barrio I, et al. A dynamic COVID-19 immune signature includes associations with poor prognosis [published correction appears in *Nat Med*. 2020;26(12):1951]. *Nat Med*. 2020;26(10):1623-1635.
5. Ferreira C, Viana SD, Reis F. Is gut microbiota dysbiosis a predictor of increased susceptibility to poor outcome of COVID-19 patients? An update. *Microorganisms*. 2020;9(1):53.

Aerosolized Liposomal Amikacin and Laryngeal Injury

To the Editor:

We read with interest the case report by Axiotakis et al[1] published in *CHEST* (April 2021). The article described