

Authors' response to the Letter to the Editor regarding: Post severe COVID-19 infection lung damages study. The experience of early three months multidisciplinary follow-up

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Dear Editor,

we thank Dr Ruggeri *et al.* for their interest in our previously published manuscript focused on lung damages after severe respiratory COVID-19 infection [1].

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We agree with them in regards to the great valence of CPAP and EPAP Bi-level pressure treatment settings, the duration of respiratory support and timing (at the admission and serial follow-up). All these variables were accurately recorded and considered in the analysis. However, the density and the number of variables evaluated during the course of the admission related to the non-invasive respiratory support (NRS) treatment was very high, therefore, a selection of what we and the reviewers thought the most important ones was necessary in the manuscript. In regards to the potential of PH developing in this patients' population, previous PH diagnosis and pulmonary fibrosis were a priori excluded in the methods. As the literature showed, patients with COPD, OSA, Chronic heart failure and obesity are all predisposed to ARF-COVID-19 related requiring NRS, so they were among the population admitted in the Respiratory ICU. Therefore, all patients were consecutively included, studied and their outcomes described as per the observation structure of the study. In relation to the role of transmural pressure, it has been very much debated in patients supported via NRS in particular in this COVID-19 pandemic as it can relate to the NIV success or failure and self-induced lung injury. However, in awake patients from one side the tidal volumes can be highly variable (due to patients' strength and effort, anxiety, respiratory distress, setting of the ventilator, use of sedation and corticosteroids etc.) and on the other side, patients' breathing effort greatly contribute to the transmural total pressure. The latter one is recorded with an oesophageal balloon which is not routinely used in clinical practice. In regards to the correlation between the increased right atrium area and the EPAP-CPAP-max found in the present study, its reversible or static trend it is still object to evaluation together with respiratory function, exercise capacity and a psychological evaluation in larger number of patients.

Thanks for highlighting the increased PT INR (mean \pm SD), it is an error and the real mean \pm SD is 1.08 \pm 0.09 instead.

In terms of the usefulness of the LUS and the CTPA, the latter one was used to assess the pulmonary vascular involvement but also to compare the grade of interstitial involvement found with the LUS. The results of this comparison were previously described, and they confirmed LUS high reliability in precisely assess residual interstitial lung involvement compared to CTPA [2]. At last, the severe hair loss described in this patients' popula-

tion was Alopecia in three different forms: Telogen Effluvium, Androgenic Alopecia or a combination of the two. Among all potential hypothesis of pathophysiology mechanisms first, prophylactic or therapeutic doses of anticoagulants, dysthyroidisms, and emotional stress were described [3]. Second, the persistent hypoxia due to the hypoxiemic respiratory failure, third, given the shortage of helmet NRS during the first pandemic wave, the use of tight mask head support may have also contributed to the poor scalp oxygenation and normal hair's vital cycle. In conclusion, we agree that respiratory complications related to COVID-19 severe lung involvement are still yet to be fully clarified.

Further studies will certainly help in better understanding.

References

1. De Michele L, Pierucci P, Giovannetti G, et al. Post severe COVID-19 infection lung damages study. The experience of early three months multidisciplinary follow-up. *Monaldi Arch Chest Dis* 2022;92:2142.
2. Giovannetti G, De Michele L, De Ceglie M, et al. Lung ultrasonography for long-term follow-up of COVID-19 survivors compared to chest CT scan. *Respir Med* 2021;81:106384.
3. De Michele L, Pierucci P, Carpagnano GE, et al. Late unexpected consequences of COVID-19 infection in survivors of acute hypoxic respiratory failure. *Int Med J* 2021; 51:1363-4.

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