Early View

Correspondence

Reply to: Effect of prone positioning without mechanical ventilation in COVID-19 patients with acute respiratory failure


This manuscript has recently been accepted for publication in the European Respiratory Journal. It is published here in its accepted form prior to copyediting and typesetting by our production team. After these production processes are complete and the authors have approved the resulting proofs, the article will move to the latest issue of the ERJ online.

Copyright ©The authors 2022. This version is distributed under the terms of the Creative Commons Attribution Non-Commercial Licence 4.0. For commercial reproduction rights and permissions contact permissions@ersnet.org
Reply to: Effect of prone positioning without mechanical ventilation in COVID-19 patients with acute respiratory failure

Orlando R. Pérez-Nieto [https://orcid.org/0000-0001-8817-7000] (1), Eder I. Zamarron-Lopez [https://orcid.org/0000-0003-3117-8592] (2), Josué L. Medina Estrada (3), Jesús Salvador Sánchez-Díaz [https://orcid.org/0000-0003-1744-9077] (4), Manuel A. Guerrero-Gutiérrez [https://orcid.org/0000-0002-0645-1833] (5), Diego Escarraman-Martinez [https://orcid.org/0000-0003-3190-0258] (6), Raúl Soriano-Orozco [https://orcid.org/0000-0002-7634-4956] (7).

1. Intensive Care Unit, Hospital General San Juan del Río. Querétaro, Mexico.
2. Intensive Care Unit, Hospital IMSS Hospital General Regional No. 6 IMSS, Ciudad Madero, Tamaulipas, Mexico.
3. Intensive Care Unit, Hospital Regional No. 1 IMSS “Vicente Guerrero”, Acapulco, Mexico.
4. Intensive Care Unit, Hospital de Alta Especialidad IMSS “Adolfo Ruiz Cortines” Veracruz, Mexico.
5. Department of Anesthesiology and Bariatric Surgery, Baja Hospital & Medical Center, Tijuana, Mexico.
6. Intensive Care Unit, Centro Médico Nacional “La Raza”, IMSS, Ciudad de México, Mexico.
7. Intensive Care Unit, Unidad Médica de Alta Especialidad del Bajío IMSS T1 León, Guanajuato, Mexico.

Conflicts of Interest: The authors declare no conflicts of interest.

Funding: None.
Dear Editor,

We have read the letter by Shen et al. and appreciate their interest in our study of awake prone positioning (APP) in non-intubated patients with acute hypoxemic respiratory failure (AHRF) due to COVID-19. We would like to add a few comments to their purposeful remarks.

Shen et al. compare the results of our observational study [1] to those of two different clinical trial. The trial by Quian et al. [2] has been criticized due to the short time that patients remained in the APP (4.2 hours/day) which can be associated to treatment failure when patients remain in the prone position less than 8 hours/day, and for disparities in patients among groups who had no-resuscitation orders and were thus not offered advanced life support [3–6]. Similarly, in the study by Alhazzani et al [7], patients were only exposed to 5 hours/day in APP despite the investigators’ intentions to reach >8 hours/day, which could explain the lack of benefit in this trial as well.

We agree with Shen et al. in that APP could possibly benefit only patients with mild-to-moderate AHRF, especially those with an estimated $\text{SpO}_2/\text{FiO}_2 > 150$. Adding to their theory, we believe that APP failure in patients with severe AHRF could be causing energetic ventilations which are associated with pressure self-inflicted lung injury (P-SILI) that implies swings in transpulmonary pressure, increasing volume in aerated compartments, abnormal increases in transvascular pressure, pulmonary edema, the pendelluft phenomenon, and diaphragm injury [8].

It is worth reminding that the generation of knowledge to reach conclusions of the benefits or lack thereof from a medical intervention can be lengthy. In the case of the prone position for unconscious patients under invasive mechanical ventilation took more than 13 years until benefits in mortality were undisputed [9] since results from studies before the PROSEVA trial [10] had been uncertain. During the COVID-19 pandemic, an impressive amount of varying quality observational and experimental studies evaluating APP to prevent intubation or death were generated. Furthermore, in 2 years of the pandemic 10
systematic review and meta-analyses on the topic have been published with conflicting results, more often showing possible benefits from this intervention [11].

Undoubtedly, several questions remain to be answered regarding APP for AHRF. We have chosen the following questions which we believe are relevant to be considered when envisioning new studies on the topic:

1. How much time should a patient remain in the APP per day?
2. How do multiple short intervals versus less prolonged intervals affect the efficacy of APP when these are equal in terms of the daily dose?
3. Could APP work better in patients who have not progressed to require supplementary oxygen through high-flow oxygen devices?
4. What are the other (possible) factors which predict which patients may benefit from APP or not?

In the meanwhile, we consider that APP has been shown to be a safe intervention which is highly reproducible, of low cost, and with still undetermined benefits for patients with AHRF. Taking this into account, we are certain that it is worth continuing to study it. For the priorly outlined reasons, we as clinicians still encourage conscious patients with AHRF to remain in the prone position if tolerated and have a compromise to continue studying this intervention to attempt to solve some of the still unanswered questions.

REFERENCES


implications for acute hypoxemic respiratory failure and ARDS patients on non-invasive support. *Minerva Anestesiol* 2019; 85.

