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Reply to Comments on «Characteristics of prolonged non-invasive ventilation in hospital emergency departments and their impact on efficacy. Analysis of the VNICat registry»

Respuesta a puntualizaciones sobre «Características de la ventilación no invasiva prolongada en los servicios de urgencias hospitalarios y su impacto en la eficacia. Análisis del registro VNICat»

Dear Editor:

In the first place, we wish to express our appreciation for the comments and interest shown by Gil et al.[1] towards our work.[2] Also, we wish to thank the editor for giving us the opportunity to answer back. Although it is true that the model of ventilator was never included in our study, we do know that they were all specific ventilators for non-invasive ventilation. Also, although the programming of the different parameters involved varies from one model to the next, like they say, the actual ventilation support comes from the support pressure that results from programming. Regarding the EPAP (expiratory positive airway pressure) and CPAP (continuous positive airway pressure) values, their mechanical meaning is different, and it is true that this variable could have been shown separately on the table, which is why we wish to share the results now. CPAP values (cmsH2O): mean (SD) was 7.36 (2.20) in the NIV-HEU group (non-invasive ventilation at the hospital emergency unit) < 12 h and 6.71 (1.98) in the NIV-HEU group 12 ≥ h; *P* value = .526; EPAP values (cmsH2O): mean (SD) was 6.67 (1.45) in the NIV-HEU group < 12 h and 6.36 (1.12) in the NIV-HEU group 12 ≥ h; *P* value = .223.

The variables associated with the patients' clinical situation and arterial blood gas test were collected. They were grouped by type of acute respiratory failure, specific arterial blood gas test data, arterial oxygen tension, carbon dioxide, and pH. No significant differences were seen between the 2 groups under comparison. Poor secretion control or interphase rejection were not specifically included.

One of the main aspects of the VNICat registry (Non-invasive ventilation in Catalonia)[3] was that only 17% of the cases recruited (N = 27) were referred to hospitalization units with non-invasive ventilation still as part of the ventilation support therapy. This circumstance seems routine at the emergency services like other studies conducted in our setting reveal.[4] Although this situation can be taken as a failure, it is not a technical failure, which is what we assessed in our study, but as an organization failure of the flows of participant centers. Therefore, what we say in our conclusion is of paramount importance, that the flows of these patients need to become standardized based on the resources available to make sure that a proper transition takes place. Actually, let's go one step further. This should not be based on the resources available at all, but, as the go-to health professionals, we need to demand the existence and availability of these resources.[5]

DOI of original article: https://doi.org/10.1016/j.medin.2022.01.015.

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Usefulness of the PIRO system to predict mortality in patients with severe infection in the emergency department

Utilidad del sistema PIRO para predecir mortalidad en el paciente con infección grave en el servicio de urgencias

Dear Editor:

The management of patients with infectious processes admitted to Spanish emergency rooms (ER) represented 15% of all daily care provided before the start of the COVID-19 pandemic.[1] Also, the severity of infectious processes at their clinical presentation (patients with sepsis, relevant comorbidities, neutropenia, elderly patients with suspected bacteremia, that is, what is known as severe infection), and the 30-day short-term mortality rate have also increased over the last decade.[1]

We carefully read the article recently published by Caramello et al.,[2] and we wish to congratulate the authors over their results and comments they make revealing the difficulties and limitations of the PIRO system (predisposition, infection, response, organ failure)[3] used at the ER as a mortality risk stratification tool and to see the need for ICU admission on a routine daily basis. At the ER, both suspicion and diagnosis of severe infection or sepsis is essential. However, it is also necessary to estimate the prognosis of the patient. To this date, this is often done using the quick Sepsis-related Organ Failure Assessment (qSOFA) score.[4]

We used the database of a recent study conducted at our ER[5] with a similar profile of patients to that used by Caramello et al.[2] to see the predictive capabilities regarding mortality and ICU admission of the PIRO system that obtained better results compared to those analyzed by Howell et al.[3] and compared to the qSOFA score and the 5MPB-Toledo model to predict bacteremia. Therefore, we have reproduced both the inclusion criteria and the methodology published by the authors.[2] Our series included 1263 patients aged >18 years from July 1 2018 through August 1 2019 who met the criteria of sepsis from whom hemocultures were obtained. A total of 57% of these patients were men with a mean age of 59 ± 19 years. The overall mortality rate within the first 24 h was 1.5% while the 30-day mortality rate was 9.8%. The hemocultures of 18% of these patients tested positive while 9% had to be admitted to the ICU. The rate of dead patients according to the PIRO categories was scores <5 (4%); scores from 5 to 9 (12%); scores from 10 to 14 (21%); scores from 15 to 20 (43%), and scores >20 (73%). In our sample, the area under the ROC curve of the PIRO system, the qSOFA score, and the 5MPB-Toledo model score regarding the 30-day mortality rate were 0.753 (95%CI, 0.689–0.817), 0.741 (95%CI, 0.678–0.805), and 0.732 (95%CI, 0.668–0.796), respectively. Regarding the ICU admission, the scores were 0.598 (95%CI, 0.546–0.650), 0.612 (95%CI, 0.560–0.664), and 0.587 (95%CI, 0.535–0.639), respectively. The study was evaluated and approved by the Complejo Hospitalario Universitario de Toledo (Spain) clinical research ethics committee (reference No.: 2019/398).

With these data added to the results obtained from the authors, we believe that the limitations of the PIRO system are enough for us to not back up its use compared to the qSOFA score or even the 5MPB-Toledo model that also predicts the presence of bacteremia.

Authors' contribution

The authors declared that they have designed, developed, and drafted this manuscript.

Funding

This manuscript received no funding whatsoever from any public or private organizations.

Conflicts of interest

None reported.

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DOI of original article: https://doi.org/10.1016/j.medin.2021.11.008.