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To try and fail or succeed without trying: difficult decisions for clinicians caring for patients with pneumonia

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We appreciate the letter from Dr. Petroianni and colleagues (1), who proposed three important points for deliberation (2). First, they raised concerns about the need for a control arm to adequately assess the effect of non-invasive ventilation compared to invasive mechanical ventilation for use in patients with pneumonia. We agree that despite our use of an instrumental variable approach to account for selection bias, our analysis cannot substitute for a rigorously performed randomized controlled trial. They also expressed concern about imbalance in the proportion of individuals with a primary diagnosis of pneumonia between the non-invasive ventilation (NIV) and invasive ventilation (IMV) arms, and suggest that this could lead to residual confounding. Our use of an instrumental variable approach effectively balanced the primary diagnosis across the two arms (see Supplementary Table 4 in the original publication), lessening the risk of confounding due to differences related to primary diagnosis. Finally, they noted that our results were limited by our inability to account for relevant clinical variables that clinicians use when deciding which mode of mechanical ventilation to provide. We agree that this is an important limitation to our work that will hopefully be addressed by future clinical trials.

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Well-powered or enriched randomized trials to evaluate the appropriate mode of ventilatory support for patients with pneumonia and respiratory failure are urgently needed. Our results highlight the lack of existing evidence to support such a critical clinical decision and the ongoing uncertainty as to what drives clinicians to make these decisions. Future work must take into account the difficulty that bedside clinicians face when attempting to decide: 1) whether to initiate mechanical ventilation for a patient with pneumonia and 2) whether it is best to “try and fail” with a non-invasive therapy or “succeed without trying” by using invasive mechanical ventilation.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

1. Petroianni A, Esquinas AM. Noninvasive Mechanical Ventilation in Pneumonia: Risks of delayed intubation. Is this “red line” well defined and understood? *Crit Care Med.* 2017 in press.
2. Valley TS, Walkey AJ, Lindenauer PK, et al. Association Between Noninvasive Ventilation and Mortality Among Older Patients With Pneumonia. *Crit Care Med.* 2016 Oct 5.