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Non-invasive ventilation in patients with community acquired pneumonia in the emergency department: Author's response

We thank the authors for their interest in our manuscript and would like to take the time to address some of the valid concerns that have been raised.

We agree that the patient's severity of acute respiratory failure has bearing on prognosis in community acquired pneumonia and subsequently the intervention (NIV) applied. We provided information on the baseline severity of acute respiratory failure in Table1 (PaO2/FiO2 ratio, mean (SD): Whole Cohort 145(91.1), Successful NIV161.3 (95.8), Failed NIV 133.1(86.3); P = value 0.10). However, given the retrospective nature of our study, there was a large amount of missing arterial blood gas data. We excluded it from the main analysis as over 50% of patients did not have an arterial blood gas. Multiple imputation is a potential solution for missing data but given the large amount missing it was not advisable.

Our study demonstrates that most patients who presented to the ED with CAP and respiratory failure received NIV as first line ventilatory therapy. The study which was conducted in two centres with an experience in the use of NIV showed that NIV failed in 50% of cases. As such, caution is even more advisable when using NIV in centers with less experience.

We do agree that NIV in our study may not have been used in the same population as what has been conducted in trials of NIV in hypoxemic respiratory failure. That is most trials use NIV earlier and almost prophylactically. This may not be the case in our population but we feel strongly that it represents the “real world” application of NIV in an emergency room population. Furthermore, although the systematic review by Keenan and colleagues [1] of randomized trails suggest that patients with acute respiratory failure are less likely to be intubated when NIV support is added to the standard medical treatment, those randomized studies were conducted in ICU setting and of heterogeneous group of patients which totally different form our study's population and setting. As we illustrated in the discussion section of the paper, most of the other previous reports on NIV and CAP are from a small sample size and single centers with most studies showing a high NIV failure rate, defined as a need for intubation and ventilation, ranging from 38% to 66%.

Finally, the aim of the study was to provide both an epidemiological description and an analysis of the predictors of NIV failure in patients with CAP who receive NIV in the ED as a first line ventilatory therapy. We are in complete agreement with the authors that more studies, particularly randomized controlled studies, are needed to evaluate NIV use in patients with community acquired pneumonia.

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