

LETTER

# Non-invasive ventilation for critically ill patients with pandemic H1N1 2009 influenza A virus infection

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See related research by Rello *et al.*, <http://ccforum.com/content/13/5/R148>

We read with interest the study reported by Rello and colleagues [1]. The authors described the first 32 documented patients with pandemic influenza A H1N1 (PIAH1N1) virus infection hospitalized in an intensive care unit (ICU) in Spain. Twenty-four patients (75.0%) had refractory hypoxemia and required advanced mechanical ventilation. Eight patients (33.3%) received noninvasive mechanical ventilation at ICU admission. Six of these patients (75%) required further orotracheal intubation and invasive mechanical ventilation and two (33%) died.

Non-invasive ventilation (NIV) is not recommended for patients with PIAH1N1 virus infection complicated by pneumonia, acute lung injury (ALI) or acute respiratory distress syndrome (ARDS) because although NIV temporarily improves oxygenation and reduces the work of breathing in these patients, it does not necessarily

change the natural disease course. On the other hand, NIV may increase the risk of respiratory pathogen transmission [2] and there is not enough evidence to support the treatment of ALI/ARDS with NIV. To date, three studies have suggested that NIV has not been successful in critically ill patients with hypoxemic respiratory failure attributable to PIAH1N1 virus infection [1,3,4]. In these studies a total of 76 patients received NIV, but 64 (84.2%) of these patients required subsequent intubation and invasive ventilation.

Considering the high failure rate of NIV therapy in patients with PIAH1N1 virus infection and ALI/ARDS, the treatment of ARDS associated with the PIAH1N1 virus infection should be based upon published, evidence-based guidelines for sepsis-associated ARDS. Standard lung-protective ventilation strategies are appropriate initially [2,5].

## Authors' response

Alejandro Rodríguez, Ignacio Martín-Loeches, Jordi Rello; and the H1N1 SEMICYUC Working Group

We appreciate the interest of Dr Ñamendys-Silva and colleagues in our article [1] and their insightful observations regarding ventilator management of severe PIAH1N1 virus infection. We agree that NIV is not recommended for patients with respiratory failure due to PIAH1N1 virus infection. However, several points should be clarified. Use of NIV in ARDS remains controversial and the etiology of hypoxemia seems to be an important determinant of successful outcome. Our results describe our national clinical practice in the current pandemic and it is consistent with other reports [3,6]. Other authors have

recently reported that, in centers with expertise on NIV, 30% of patients with ARDS were treated with NIV as a first-line intervention and 30 to 50% of these avoided orotracheal intubation [1,3,6]. Thus, only a small number of patients with ARDS benefited from NIV in expert centers, always needing close monitoring in the ICU setting. In selected patients with milder presentation a conservative ventilator approach should be considered until additional data from 2009 PIAH1N1 is obtained.

## Abbreviations

ALI, acute lung injury; ARDS, acute respiratory distress syndrome; ICU, intensive care unit; NIV, non-invasive ventilation; PIAH1N1, pandemic influenza A H1N1.

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#### Competing interests

The authors declare that they have no competing interests.

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