

Response to the commentary: Non-invasive ventilation and intra-abdominal pressure – an association or dissociation?

Adrian Regli^{1,2}, Manu L.N.G. Malbrain^{3,4}, Bart L. De Keulenaer^{1,5}

¹Department of Intensive Care Medicine, Fiona Stanley Hospital, Murdoch, Australia

²School of Medicine, University of Notre Dame, Fremantle, Australia

³International Fluid Academy, Lovenjoel, Belgium

⁴First Department of Anaesthesia and Intensive Therapy, Medical University of Lublin, Lublin, Poland

⁵School of Surgery, The University of Western Australia, Crawley WA 6009, Australia

Dear Editor,

We thank Doctors Nair, Notaro, and Esquinas for the opportunity to clarify a few points regarding our study [1].

The first comment highlights the influence of body position on intra-abdominal pressure (IAP) [2]. Positioning the patient from a strictly supine to a semi-recumbent position increases IAP by around 4 and 9 mmHg for 30° and 45° head of bed elevations, respectively. In our study, non-invasive ventilation (NIV) treatment was allowed in a head elevated semi-recumbent position except for measuring IAP. As all our IAP measurements were performed in the supine position, the body position cannot have affected our results.

The second comment regards the NIV settings. In this study, NIV settings were not protocolised but left to the treating physician's discretion. The patients were categorized depending on the pressure support received (< 10, 10 to 20 and > 20 cmH₂O). Yet, we did not find pressure support to influence IAP. A shortcoming of our study is that other ventilation settings, including positive end-expiratory pressure (PEEP), were not recorded. Although PEEP increases IAP, the influence of PEEP is small [3]. Whether the mode of ventilation influences IAP is questionable [3]. Of note, Rafiei *et al.* observed different IAP levels in three patient groups based on ventilation mode [4]. As this was not a cross-over physiological study,

the different IAP levels found are likely due to differences in underlying diseases rather than ventilation modes.

A further comment was made regarding comorbidities. Comorbidities were unfortunately not captured in our study. We found that PaCO₂ did not change from before to 24 hours after the application of NIV (Wilcoxon signed-rank test).

Overall, we do not think that NIV settings or comorbidities influenced IAP, although a more extensive study might be able to provide further answers.

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CORRESPONDING AUTHOR:

Prof. Adrian Regli, Department of Intensive Care Medicine, Fiona Stanley Hospital, Murdoch, Australia, e-mail: adrian.regli@gmail.com