

## Response to: Domiciliary long term non-invasive ventilation in COPD: should we select subgroups with a better likelihood to respond to NIV in subsequent randomised controlled trials?

Dear editor,

We thank Borel *et al*<sup>1</sup> for their comments on our paper.<sup>2</sup> Borel and colleagues suggest that future studies should focus on specific COPD subgroups who have better likelihood of response to chronic non-invasive ventilation (NIV). They recently showed that obese COPD patients respond better to NIV compared with non-obese patients.<sup>3</sup> We completely agree with their suggestion about focusing on COPD subgroups for future studies and in fact we tried to do so as well. In our study, we investigated the benefits of chronic NIV in COPD patients after they received ventilatory support due to acute respiratory failure. However, we focused on a more specific COPD group (in the letter by Borel and colleagues called 'respiratory COPD') and as we expected chronic NIV to be more beneficial in those patients with obstructive sleep apnoea (OSA), we excluded the latter group. The mean Body Mass Index of our study population was 25 kg/m<sup>2</sup> suggesting that obesity/OSA was not the major factor in their respiratory failure. In short, we focused on a group with more pure COPD who were being treated for acute respiratory failure but who showed no response to chronic NIV. The outcome of

our study is relevant as it means that COPD patients who need NIV in the acute setting are a priori not the best candidates for chronic NIV.

The second comment of Borel and coworkers is related to adherence and the number of hours of usage of NIV. In our recent meta-analysis, we found significant differences in change in arterial carbon dioxide pressure (PaCO<sub>2</sub>) after 3 months in those patients who used NIV for at least 5 h per night compared with those with less than 5 h of usage per night.<sup>4</sup> Based on this review, we defined our per protocol analysis in the present study<sup>2</sup> including only patients who used NIV for more than 5 h per night. However, this did not lead to a better primary outcome.

Overall, we agree with Borel and colleagues that based on their study it seems that chronic NIV is more effective in obese COPD patients; however, a randomised controlled trial in this specific subgroup is lacking. In addition, we think that further subgroup analysis in our 'respiratory COPD' group is needed as we believe that even in these patients responders to chronic NIV can be found.

**F M Struik,<sup>1,2</sup> P J Wijkstra<sup>1,2</sup>**

<sup>1</sup>Department of Pulmonology/Center for Home Mechanical Ventilation, University of Groningen, University Medical Center Groningen (UMCG), Groningen, The Netherlands

<sup>2</sup>Groningen Research Institute for Asthma and COPD (GRIAC), University of Groningen, University Medical Center Groningen (UMCG), Groningen, The Netherlands

**Correspondence to** F M Struik, Department of Pulmonary Diseases/Home Mechanical Ventilation, University Medical Center Groningen, Triade gebouw AA62, Groningen 9713 GZ, The Netherlands; f.m.struik@umcg.nl

**Contributors** FMS and PJW wrote the authors' response. FMS was the coordinator of the study, directly involved in the project design, patient recruitment, data collection and analysis, and is the main author of the manuscript. PJW was main investigator, led the study group, contributed to the design of the project, and contributed to and approved the final study; he is the guarantor of the entire study.

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