Oxygen titration in hypercapnic COPD exacerbation

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Published online: 26 February 2019
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Dear editors,

We kindly thank the colleagues from Golnik for their letter [1]. They rightfully point out that there seems to be an over-oxygenation in our study subjects. Although oxygen titration in hypercapnic chronic obstructive pulmonary disease (COPD) exacerbation was not a specific research question of our study [2], we would like to recap our hospitals' common practice of oxygen therapy in hypercapnic COPD exacerbations, which closely follows the COPD gold guidelines. The 2019 COPD gold guidelines state: "Oxygen therapy is a key component of hospital treatment of an exacerbation. Supplemental oxygen should be titrated to improve patient's hypoxemia with a target saturation of 88–92%. Once oxygen is started, blood gases should be checked frequently to ensure satisfactory oxygenation without carbon dioxide retention and/or worsening acidosis" [3]. Following the admission of a hypercapnic COPD patient to the intensive care unit (ICU), we check blood gases approximately every hour until there is clinical improvement and then extend the check-up intervals to 6-hourly. We try to avoid over-oxygenation in patients with severe COPD, since the ability of deoxygenated hemoglobin to bind CO₂ is higher than that of oxygenated hemoglobin (via the so-called Haldane effect) and over-oxygenation increases dead space ventilation by inhibiting the protective effects of hypoxic pulmonary vasoconstriction

[4]. Given our study data we would like to stress that the initial blood gas measurements were taken immediately after arrival in the ICU. We acknowledge that there was a certain amount of over-oxygenation in patients arriving directly from the emergency room; however, the authors would like to point out that this amount of over-oxygenation is routinely quickly corrected on the ICU and should not be representative for the subsequent treatment phase.

Conflict of interest G.-C. Funk declares that he has no competing interests.

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