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LETTER TO THE EDITOR

Letter to the editor

Harald Andel[1]

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To the editor,

With great interest, we did read the review on "mild hyperbaric oxygen: mechanisms and effects". However, regarding the stated mechanism of higher amount of oxygen administered, it is noteworthy to mention that about twice as much oxygen could be administered to the patients when breathing pure oxygen via a tight fitting mask under normobaric conditions (i.e., 1013.25 hPa).

Using 40% oxygen at 1317 hPa provides a partial pressure of oxygen of 528.8 hPa (1317 hPa × 0.4), whereas breathing pure oxygen at normal ambient pressure would provide a inspiratory oxygen partial pressure of 1013.25 hPa. For reaching the same oxygen partial pressure when breathing 40% of oxygen at an ambient pressure of 1317 hPa, it would be sufficient to breathe 52% oxygen under normobaric ambient pressure.

Furthermore, in the paper, it is stated:

In addition, regardless of pressure, oxygen treatments involving > 40% oxygen have shown adverse effects, e.g., damage of erythrocytes due to reactive oxygen species and reduced quantity of oxygen bound to hemoglobin in rats (Nagatomo F, Fujino H, Kondo H, Ishihara A (2012) Oxygen concentration-dependent oxidative stress levels in rats. Oxid Med Cell Longev. https://doi.org/10.1155/2012/381763). This conclusion is not valid as in the cited paper only oxygen concentrations were changed and not the ambient pressure. Therefore, it can only be concluded that more than 40% of oxygen administered continuously for 24 h have shown adverse effect in rats, whereas there is no proof of similar adverse effect when providing oxygen for shorter periods—specially when using oxygen breaks. By the way, the oxygen partial pressure provided during "mild hyperbaric treatment" is well above the 40% as it equals about 50% normobaric.

Given the higher costs of "mild hyperbaric oxygen therapy" and the higher risks for the patients (e.g., barotrauma of the ears), there is no reason for using a hyperbaric chamber instead of a simple oxygen mask for administering the same amount of oxygen to the patients.

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✉ Harald Andel
harald.andel@meduniwien.ac.at

[1] Department of Anesthesia and General Intensive Care, Medical University of Vienna, Währinger Gürtel 18-20, 1090 Vienna, Austria