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Title: Nasal high flow: Is it a wash – out – effect?

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Body: Introduction: The treatment with nHF reduces symptoms of chronic respiratory insufficiency. In addition, a reduction of the hypercapnia was observed. Method: Patients with COPD were measured with a flow of 20 and 30 l/min. For the measurement of the breath volumes and the respiratory rates impedance measuring belts were used. These were placed 10 cm below the Xiphoids and 10 cm below the jugulum. A polysomnography device served for the registration. The airway pressures were measured by using a water-filled tube in the hypopharynx. The BGA was taken from the hyperemic earlobe before and under nHF–use (2h). Results: Significant differences of the mean pressure and pCO₂ appeared between the flows 20 and 30 l/min. The respiratory volumes and respiratory rates did not show changes between both flows. The minute volumes dropped in comparison to spontaneous breathing.

Discussion: The effects caused by nHF are unclear up to now. It could be shown in an animal experiment that the pCO₂ decreases in a flow-dependent size independent of pressure. In our investigations the mean pressure and the minute volume decreased in comparison to spontaneous breathing. The increase of mean pressure by rising the flow was not enough to generate significant differences in minute volume. Therefore we believe that the wash out-effect is the primary mechanism to the decrease in pCO₂.