Effects of high-flow transnasal insufflation compared with cPAP and spontaneous breathing on pressure amplitude and mean pressure in patients with IPF and COPD

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**Introduction:** Treatment with high flow transnasal insufflations (TNI©) is able to improve symptoms of chronic respiratory insufficiency. The method uses a warmed and humidified high flow of air/ oxygen with 16-24 L per minute. In pediatric patients the device was similarly effective compared to non-invasive ventilation with a face mask. An increase in mean pressure in healthy volunteers has been described. The clinical effects in adults are unknown.1-4

**Results:** TNI led to an increase in pressure amplitudes and mean pressure in healthy volunteers and patients with COPD or IPF in comparison with spontaneous breathing. CPAP alone showed a greater effect on mean pressure in all groups. In summary, transnasal insufflation resulted in an increase in pressure amplitude and mean pressure in healthy volunteers and in patients with COPD and IPF. Blood gas analysis revealed a decrease in pCO₂ in patients with IPF and COPD.

**Discussion:** Transnasal insufflation resulted in significant effects on respiratory parameters in patients with obstructive and restrictive pulmonary diseases. The rise in pressure amplitude and mean pressure will support inspiratory efforts, may increase ventilation and will contribute to a reduction in the work of breathing. A CO2 wash-out of the upper airway part of the anatomical dead space may contribute to the beneficial effects of the TNI instrument.