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Title: Effect of transnasal "high-flow oxygen insufflation" in patients with severe COPD

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Body: Introduction Long-term oxygen therapy is one of the established treatment strategies. Nasal insufflation of warm, humidified air at a high flow rate is a new and simplified method in non-invasive ventilation. Until now, no data on the safety, effects and efficacy of in COPD patients are available. Our multicenter, controlled study has been approved by the national ethic committees. Aim It was designed to examine the safety and effects of high flow therapy in patients with COPD °IV and to assess possible changes in efficiency in ventilation and parameters of the lung function. Method Patients with COPD °IV with indication for LTOT are enrolled. The following inclusion criteria have to be met: age 30-80, stable disease for 14 days, Hb>100g/l, and no current participation in another study. Results So far 38 subjects were recruited: 32 males, 6 female, age 67.5 +/-6,64yr, FEV1 14-49% predicted. Oxygen supplementation was performed in 10 min intervals each with an augmentation of 0.5-1 L/min until a pO₂ >60mmHg was achieved. Using [TNI], oxygen was mixed with warm and humidified air at a constant flow rate of 15 L/min. Concerning safety high flow delivery was well tolerated in all patients and no significant differences were found for several spirometric parameters tested. Furthermore a highly significant decrease of CO₂ in arterial blood after short-term treatment could be measured (- 2,87 mmHg; p=0,0001) compared to conventional oxygen administration. Conclusion In conclusion, we can postulate that short-term treatment with high flow [TNI] seems to be safe in patients with COPD °IV with a reduced oxygen demand. Further trials have to be enrolled for longer periods to prove efficiency.