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COMPARING A NASAL HIGH-FLOW THERAPY WITH SINGLE AND DOUBLE SIDED APPLICATION (TNIOXY) ON BREATHING AND GAS EXCHANGE AT STABLE HYPERCAPNIC RESPIRATORY FAILURE

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Introduction: Nasal high-flow therapy is another option of respiratory support in sleep and ventilation medicine. But the precise pathophysiological effects (reduction of dead space ventilation, development of a PEEP) remain unknown, and the patient group, that may profit of such therapy, is not defined.Question: Compared are respiratory frequency (RF) and gas exchange under nasal high flow therapy of 20l/min (applicated through one and both meatus of the nose) with the effect oxygen therapy (LOT) of 2 l/min at 21 patients with stable hypercapnia in a prospective randomised order for always 45 minutes while awake. A capillary blood gas analysis (BGA) was made after each phase, as well as a 15 minutes break.Results: The mean RF/min was under LOT 19.4±4.0 and was reduced to 17.8±4.7 under double sided TNI application and 17.7±4.3 under single sided TNI application (difference between LOT and single sided: p=0.043). BGA: After LOT the PO2 was 68.5±16.8 mmHg, TNI double: PO2 61.6±22.9 mmHg 3, TNI single PO2 59.0±145 mmHg (difference between LOT and TNI single: p=0.046)Conclusion: In the course of 45 minutes at daytime the application of TNIoxy can reduce the RF and PCO2 in COPD GOLD IV patients with stable hypercapnia significantly compared to LOT. The different effects of single sided and double sided application let us presume a reduction of dead space ventilation