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Title: Could facial interface have an impact on efficacy of non-invasive ventilation (NIV)?

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Body: Nasal (NM) or facial (FM) masks could be used to provide CPAP and NIV treatment. Nevertheless, FM may not be effective in a subset of patients (p) with sleep apnea[1]. In a cohort study we compared the efficacy of NM and FM in a subset of p initially treated by FM in whose obstructive events (OE) persisted despite a high level of expiratory pressure. Methods We randomly performed a polysomnography (PSG) on NM and FM in patients primarily treated by FM and in whose OE persisted despite pressure ≥ 12cm H2O in p on CPAP, or EPAP ≥ 10 cm H20 in those on bilevel or assisted servo ventilation (ASV). In patients on CPAP, both PSG were performed by using an AutoCPAP mode (6-18 cm), whereas in NIV and ASV p, EPAP was set at currently used levels. Results We included 54 p (age 74±2.9, BMI 33±2.4, 32 M / 22 F, basal AHI 55±9.4) fulfilling the inclusion criteria (35 on CPAP, 17 on bilevel, 2 on ASV). 9 p were excluded (5 reject to participate, 4 did not tolerate NM). Among the 45 remaining, 33 showed a significant difference in AHI between both masks (total: FM 44±17, NM 9±0.6; OE: FM 37±2, NM 4.4±2.4 $p<0.0001$). Arousal index was also significantly higher with FM than with NM (32.4±1.5 vs 11.5±1.6 $p<0.0001$), while sleep efficiency didn't vary significantly between both nights. In CPAP patients, effective pressure (P95) was also significantly higher with FM (FM 18±0.2, NM 13.9±0.3 $p<0.0001$), while mean leaks (l/sec) were similar with both masks (FM 3.5±0.4, NM 3.8±0.4). When p showing differences between masks were compared with those without, age, BMI and sex were similar. Conclusion This study suggest that, in a subset of patients, FM can impact the efficacy of both CPAP and NIV [1] Schorr, Eur Resp J 2013:40; 503.