

CFAO Graduate Student Posterboard Abstracts

Université de Montréal

CLINICAL DIFFERENCE BETWEEN THE NASAL AND FACIAL CPAP MASKS IN THE TREATMENT OF OBSTRUCTIVE SLEEP APNEA. A PILOT STUDY

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The first line of treatment for obstructive sleep apnea is continuous positive airway pressure or CPAP used via a nasal mask. Some patients, unable to tolerate the nasal mask, have to turn to the facial mask, which sometimes requires a superior level of pressure to eliminate all the respiratory events. We believe that the force applied on the chin from a tight adjustment of the facial mask may retrude the mandible and diminish the upper airway caliber. Our objectives for this study were to: 1) demonstrate that a difference of effective therapeutic pressure between the nasal and facial masks does exist, 2) quantify the leaks associated with each mask, 3) evaluate the effect of a neutral mandibular appliance (NMA), that prevents the retrusion of the mandible, on the effective pressure of both masks and 4) evaluate if a link between the cephalometric values and varied individual responses to both masks exists.

Methods: Eight subjects (2 females, 6 males) mean age 56.3 years (33-65y) participated in the cross-over design pilot study. All subjects underwent a complete orthodontic examination including lateral cephalometric radiograph before spending two nights in a sleep laboratory for a polysomnography in a split-night protocol, where both masks were worn alone on the first night and with the NMA on the second night.

Results: We found that the therapeutic effective pressure was higher with the facial mask compared to the nasal mask, and this difference was statistically significant. The leak was more elevated with the nasal mask, thus eliminating this factor as a probable cause of the higher pressure with the facial mask. The NMA did not have any statistically significant effect on both masks; however a possible positive effect might be seen with the inclusion of the Bi-level PAP pressures.

Conclusion: Our results cannot confirm the role of the retrusion of the mandible, caused by the force applied by the facial mask, in the necessity of a superior level of pressure with that mask, but we cannot eliminate that possibility either. Our results suggest that this phenomenon is more frequent than we may think and that a link with some anatomical factors may exist.

Keywords: Obstructive sleep apnea, continuous positive airway pressure, facial mask, nasal mask, neutral mandibular appliance, critical pressure

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TIMING OF PEAK MANDIBULAR GROWTH IN DIFFERENT FACIAL GROWTH PATTERNS

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Objectives: To describe the timing and rate of PMG in orthognathic subjects with different facial growth patterns.

Methods: From a sample of 180 subjects from the BGC with annual lateral cephalograms from age 9 to 18 years, those who received comprehensive orthodontic therapy were excluded. ANB was measured at age 16 years to select orthognathic profiles (ANB 1 to 4.5 deg). Y-axis was measured at 10 and 16 years. Based on the Y-axis change (mean = -1.82 deg), the final sample was grouped into average (-2 to 0 deg; n=18), vertical (> 0 deg; n=14) and horizontal (< -2 deg; n=31) growth patterns. Mandibular growth rates were calculated and PMG was determined from annual mandibular growth graphs.

Results: PMG occurred at 13.23 + 1.80 yrs in the vertical facial growth pattern group, 13.61 + 1.11 yrs in the average and 13.68 + 1.27 yrs in the horizontal group. The rates at PMG were 4.6 + 1.4 mm/yr in the vertical, 5.0 + 1.5 mm/yr in the average and 4.8 + 1.8 mm/yr in the horizontal growth pattern groups. No significant differences were found in age or rate at PMG between the facial growth patterns, however an interaction between gender and growth pattern was found.

Conclusions: Individuals with different growth patterns do not significantly differ in the timing or rate of PMG. The interaction between gender and growth pattern due in part to the earlier age of PMG in vertically growing females compared to individuals with average and horizontal growth patterns.