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Title: The efficacy of a chinstrap in the treatment of obstructive sleep apnea

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Body: Introduction: Vorona et al. (2007) described severe OSA responding to chinstrap alone in a patient who had stopped continuous positive airway pressure (CPAP) for two months. They reported improved apnea-hypopnea index (AHI) and oxygen saturation suggesting chinstraps merit investigation as treatment for OSA. We performed this study to evaluate chinstrap as an alternative to CPAP for OSA. Methods: 27 adults with AHIs >5/hr on diagnostic polysomnography (PSG) underwent modified split study (chinstrap alone for first two hours; titration for the rest of the night with CPAP without chinstrap). We compared AHIs and oxygen saturation nadirs during diagnostic PSG with those obtained during the chinstrap portion of the study and the optimal CPAP pressure. Non-parametrical statistical methods were used. Data are presented as median; interquartile range (IQR). Results: There was no statistically significant difference between diagnostic AHI (16.0/hour; 9.8 to 26.0/hour) and chinstrap AHI (22.4/ hour; 10.8 to 40.3/hour). However, there was a statistically significant difference between diagnostic AHI and optimal CPAP AHI (2.3/ hour; 1.0 to 5.2/ hour) (p<0.001). There was no statistically significant difference between the nadirs of the diagnostic oxygen saturation (84.5%; 80.0 to 88.0%) and the chinstrap oxygen saturation (87.0; 84.0 to 89.0%). However, there was a statistically significant difference between diagnostic oxygen saturation nadir and optimal CPAP oxygen saturation nadir (93.0%; 91.0 to 94.3%)(p<0.001). Conclusion: Chinstrap alone does not produce statistically significant improvements in AHI and oxygen saturation nadirs in patients with OSA, and is not an effective alternative to CPAP therapy.