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Effect of biomimetic oral appliance therapy in adults with OSA

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Biomimetic oral appliance therapy (BOAT) represents an alternative to continuous positive airway pressure or mandibular advancement devices for treating obstructive sleep apnea (OSA) in adults. Therefore, we tested the hypothesis that the upper airway can be improved in adults diagnosed with mild, moderate and severe OSA using BOAT. For this study, we recruited 17 consecutive adults aged >21 yrs diagnosed with OSA after an overnight sleep study that was interpreted by a sleep physician. The mean apnea-hypopnea index (AHI) of the sample was calculated prior to and after BOAT and the findings was subjected to statistical analysis using paired T-tests. In this study, 9 subjects were diagnosed with mild to moderate OSA (mOSA; AHI<30) and 8 subjects with severe OSA (sOSA; AHI>30). Prior to treatment, the mean AHI was 13.2 ± 7.2 for the mOSA group. The mean treatment time was 8.7 mos. ± 5.8 and the mean AHI fell by 66% to 4.5 ±3.6 (p=0.002) after BOAT. For the sOSA group, the mean treatment time was 10.4 mos. ± 2.6 and the mean, pre-treatment AHI was 46.6±12.0. After BOAT for the sOSA group, the mean AHI fell by 70% to 13.9±10.5 (p=0.001). This study supports the notion that BOAT may be successful in reducing the AHI in adults diagnosed with mild, moderate and severe OSA. However, long-term follow up and larger sample sizes are needed to determine whether these initial upper airway improvements can be maintained.

Biography

G Dave Singh was born, educated and trained in England (Universities of Newcastle, Bristol and Dundee, UK). He holds three Doctorates and has numerous publications in the medical, dental and orthodontic literature. Previously, he was Visiting Professor, University of Michigan, USA. Currently, he is the CEO of BioModeling Solutions, Inc.

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