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Utility of Palatal Height in Oral Screening for Obstructive Sleep Apnea: A Correlational Analysis in a Thai Adult Group

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Abstract

Objectives: This study investigated associations between palatal height (PH) and polysomnographic (PSG) parameters in obstructive sleep apnea (OSA) patients. The upper posterior arch width (UPAW) and the scalloped tongue and oral torus distributions across PH were also assessed.

Methods: Gender, age, body mass index, Thai version of the Epworth sleepiness scale score, and PSG parameters were obtained from medical records of 60 adult OSA patients. Scalloped tongue and oral torus were clinically examined. PH and UPAW were measured using digitized models from 3D scans of dental plaster casts. Based on the median PH, participants were stratified into two groups (PH<17.58 mm, n=30; PH≥17.58 mm, n=30). At $p<0.05$, statistical analyses included independent t- or Mann–Whitney U tests, chi-square or Fisher's exact tests, and Spearman's rank or Pearson's correlation coefficients.

Results: A significant intergroup difference ($p=0.037$) was detected in UPAW only. In those with a PH<17.58 mm, PH was moderately correlated with nadir oxygen saturation ($r=0.557$), apnea-hypopnea index ($r=-0.536$), and respiratory disturbance index ($r=-0.419$). Severe and moderate scalloped tongues were seen in the PH<17.58 mm and PH≥17.58 mm groups, respectively. A weak correlation ($r=0.368$, $p=0.048$) was found between UPAW in the PH<17.58 mm group and scalloped tongue. A significant difference in oral torus distribution was observed between groups ($p<0.001$), with the majority of patients in both groups exhibiting no torus.

Conclusions: Although PH alone is not a definitive predictor of OSA severity, it may be simple for dentists to assess and must be interpreted cautiously in light of other factors.

Keywords: craniofacial morphology, obstructive sleep apnea, palatal height, polysomnography, upper posterior arch width