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The Influence of Facial Pattern on Skeletal Class I Subjects- A Cephalometric Analysis

Caley Hoediono, William A. Wiltshire, Kris Row, Charlene Solomon
Division of Graduate Orthodontics, University of Manitoba

Objective

The purpose of this retrospective study was to assess the correlations between the Wits appraisal (when using maxillomandibular bisector as the occlusal plane), ANB analysis and facial pattern in skeletal Class I subjects

Materials and methods

A retrospective chart review was undertaken on 100 Class I subjects according to the ANB angle. The maxillomandibular bisector (MMB) was used as the occlusal plane to determine the anteroposterior jaw discrepancy according to the Wits appraisal. Four additional measurements (mandibular plane angle, Y-axis, lower facial height and facial axis) associated with facial pattern were measured to determine whether the Wits or ANB analysis is correlated in classifying skeletal and facial patterns.

Results

A weak correlation was found between ANB and Wits ($r=0.38$) that was statistically significant ($p<0.05$). Correlations between ANB and all facial pattern measurements were also weak, but they were not statistically significant ($p>0.05$). Moreover, associations were found between Wits and facial pattern measurements ranging from low to high (-0.05 to 0.57) and were all statistically significant ($p<0.05$). The strongest correlations were between facial axis ($r=0.57$), MPA ($r=-0.46$) and Wits. A moderate correlation was found between lower facial height and Wits ($r=-0.331$). There were no substantive differences between males and females.

Conclusions

The Wits appraisal using the maxillomandibular bisector occlusal plane is a valid indicator of the sagittal discrepancy and facial pattern. Wits may be a more accurate predictor of facial pattern vs. ANB. However, caution must be exercised in trying to relate Wits appraisal to the gold standard of the ANB angle.