EVALUATION OF THE RELATIONSHIP BETWEEN CEPHALOMETRICALLY ASSESSED INCISOR INCLINATION AND THE THIRD ORDER ANGLE USING TORQUE ANGULATION DEVICE

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ABSTRACT

Background and objectives: Ideal incisor inclination has become a realistic goal for successful orthodontic treatment. Though incisor inclination has traditionally been assessed by cephalometric analysis, torque or third-order prescriptions of brackets do not refer to cephalometric lines. The purpose of this study was to quantify the relationship between the cephalometric measurement data, and the third-order angle measured on dental casts. A second objective of the study was to assess if any relation existed between incisor inclination and vertical and sagittal skeletal relationships.

Method: Lateral cephalograms and dental casts of fifty five subjects with class I molar relation were used. Torque angulation device was used for assessing incisor inclination on dental casts. Incisor inclination, skeletal sagittal and vertical measurements were made on the cephalograms. The cephalometric measurement data were statistically analyzed and compared to the dental cast measurements.

Results: A highly significant correlation existed between the cephalometric and direct-cast assessed incisor inclination measurements for both the upper and lower incisors. Significant correlation existed between the upper and lower incisor inclination and the sagittal skeletal finding ANB. The lower incisor inclination measurements showed highly significant correlation with the vertical skeletal findings.

Interpretation and Conclusion: Third order measurements directly from dental casts can provide a useful guideline when accommodating incisor inclination. Regression equations derived from correlations between the cephalometric and direct-cast assessed incisor inclination measurements enable the clinician to use the determined cephalometric data to calculate the third-order data or vice versa. Correlation between the upper and

lower incisor inclinations and the sagittal-skeletal morphology indicates that compensatory adjustment in the incisors act to reduce the anteroposterior discrepancy between the apical bases.

Key words: *Torque; Third-order angle; Upper and lower incisor inclination; NA and NB lines; Torque angulation device.*