Chronological Age Estimation in Adolescent and Young Adult Subjects in Relation to Mandibular Third Molar Development Using Digital Panoramic Image

(Cross Section Study)

A thesis
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ABSTRACT

Predicting chronological age in adolescents and young adults can be crucial in Medico legal contexts and the third molar is the only developing tooth during this period that used to determine chronological age.

The purpose of this study is to estimate the chronological age based on the stages of mandibular third-molar development following the eight stages (A–H) method of Demirjian et al.

The final sample of this study consisted of 436 Iraqi adolescents and young adults subjects have been chosen with known chronologic age (range, 14–24 years) and sex (162 males and 274 female), digital panoramic radiograph had been taken for each examined subject, Demirjian's grading has been used to assess third molar development, this procedure was accomplished by using dimaxis

Statistical analysis was performed using a paired t-test to analyze the various developmental stages of mandibular third molar between males and females; ANOVA test to show the differences in developmental stages; and Pearson correlation was performed to describe the relationship between developmental stage and chronological age.

Statistically the results revealed significant chronological age mean differences ($P<0.05$) at the stages (D, E and F) of mandibular third-molar development between males and females; and there is strong correlation between chronologic age and mandibular third-molar development for males ($r2=0.91$) and for females ($r2=0.87$).

It was concluded that the use of mandibular third molar development stages using Demirjian method can be considered as good valuable chronological age indicators in adolescents and young adults.