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AGE IDENTIFICATION BY DENTAL MEANS IN DOWN SYNDROMIC INDIVIDUALS

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***Background**: Down syndrome (DS) is the most well known and common chromosomal disorder in humans. Recent birth statistics in the United States show an increasing prevalence, currently observed at 11.8 per 10,000 births. Down syndrome is one of the major cause of mental retard associated with congenital anomalies and dental agenesis. Dental anomalies, especially agenesis, are very common, both in the primary and permanent teeth, and they occur with an incidence five times greater than in the non-affected population. In the primary dentition, the most commonly absent teeth are lateral incisors, while in the permanent dentition, third molars, second premolars and lateral incisors, in this sequence, are the most frequently missing teeth. The dental eruption timing in DS children is different from non-syndromic individuals, many. Authors stated that the eruption of primary and permanent teeth is delayed and that the primary teeth not always had their complete formation before the age of 5 and that female are later than male. Nowadays the importance of the age estimation is increasing because of immigration and adoption reasons, we are asked to determine the scholar or the majority age as much as possible precise. Determining a child's chronological age and stage of maturation is particularly important in forensic and anthropological fields particularly when only immature skeletal remains are available, or for ethical reasons when many babies with anomalies are abandoned without birth documents in reception centers. However, very few studies have been done on people, who for genetic reasons, does not have characteristics of dental and physical development comparable with non-syndromic individuals.*

***Aim**: The aim of this study is to estimate the dental age in syndromic individuals affected by X-21 trisomy in order to evaluate whether the genetic syndrome affected the velocity pattern of dental mineralization.*

***Material**: A sample of 47 patients (23 males and 24 females) aged between 7 and 22 years was selected. All subjects were affected by X-21 syndrome. The chronological age was calculated in days (date of X-rays examination - date of birth). Panoramic x-ray was used to analyze teeth anomalies such as agenesis and to evaluate the dental age. The control group was represented by 47 people with no genetic anomalies, the selection was partially stratified to ensure that all age groups and both sexes were adequately represented.*

***Methods**: Willems', Cameriere's and Demirijan's original methods with were applied to stage the dental maturation. The wisdom teeth have not been considered because of the high percentage of hypodontia in DS individuals. Dental age estimations are provided by an operator expert in dental*

age estimation. However the third molars were present in 10 subjects and we added for such cases an age estimation with Demirijan's method based on 8 teeth . The difference between estimated age and chronological age is assumed as variable and compared to the values obtained for non-affected children. The velocity pattern of dental mineralization in DS children will be analyzed for the possible influence of DS on tooth maturation and, then on age estimation procedures.

Conclusion: The relevant incidence of agenesis obstructs the application of common methods for age estimations (Demirjian 7 –teeth method, e.g.) in subjects with DS. A high incidence of notably advanced or delayed (> 24 months) dental development was found, but larger sample is needed to provide definitive conclusion.

***KEYWORDS*:** Forensic Odontology, Dental Age Estimation, Down Syndrome.

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