OP50 DENTAL DEVELOPMENT IN PATIENTS WITH AGENESIS

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AIMS: To evaluate if dental development of patients with agenesis is delayed compared to a control group.

MATERIALS AND METHOD: One thousand one hundred and forty seven panoramic radiographs of patients with dental agenesis were collected [452 males, 695 females; age range 6.2 to 24.8 years (mean age 12.0 years)]. In the control group, 2032 panoramic radiographs were included [977 males, 1055 females; age range 6.0 years to 24.4 years (mean age 11.6 years)]. A total of 3,179 dental pantomograms were scored according to Demirjian. All present left permanent teeth in the mandible (excluding the third molar) were given a score from 1 to 8 according to their developmental stage. A continuation ratio model (Agresti, 1990) was used per tooth position to model the ordinal Demirjian scores. A likelihood-ratio test was performed to evaluate if the groups differed in their relation between age and Demirjian score. In an alternative approach to evaluate the difference between subjects with and without agenesis a developmental score (DS) was made. The association between the DS and the number teeth with agenseis was evaluated with a Spearman correlation.

RESULTS: Based on the DS, subjects with agenesis have delayed development compared to control subjects. The difference equaled 0.68 standard deviations for females [AUC = 0.711 (CI:0.686 to 0.736), $P < 0.0001$] and 0.58 standard deviations for males [AUC = 0.695 (CI: 0.666 to 0.725), $P < 0.0001$]. The result on delayed development based on the DS was confirmed by the results of the continuation-ratio model applied per tooth position. Within the group of subjects with agenesis, there was a weak relationship between the number of teeth with agenesis teeth and the DS: the higher the number of teeth with agenesis, the lower the DS: rho = –0.16 ($P < 0.0001$) and rho = –0.09 ($P = 0.05$) for females and males, respectively.

CONCLUSION: Dental development in patients with dental agenesis is delayed compared to the control group. There also seems to be a weak correlation with the number of agenetic teeth and the degree of delay in dental development. This can be an important factor for treatment planning in patients with dental agenesis. New dental age estimation methods should be made for these specific subjects.