

Comparison between estimated age from teeth and bone development

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ORAL PRESENTATION
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ABSTRACT

Background: In age assessment of children the recommendations are that they are based on development of both teeth and bone, but there is no recommended procedure to collate these results. It has been shown that there are different genetic mechanisms controlling dental and skeletal development. It is therefore of interest to look at the relationship between age assessments performed by these two independent methods. The purpose was to check for real differences and reveal systematic differences between the two methods.

Material and methods: This was a retrospective study where examination had been performed on 3333 asylum seeking boys and 486 asylum seeking girls who attended for age assessments from January 2010 to December 2014. Their chronological age was unknown. The skeletal age estimation was performed on radiographs of the developing bones in the hand and wrist using the atlas of Geulich and Pyle (1959). The dental age assessment was made based on clinical assessment and using tables from Haavikko (1979) and Liversidge (2008) on developing teeth on OPG radiographs. The agreement between the two age assessments was classified into four groups: Agreement 1: Individual is 18 years or older from both age assessments. Agreement 2: Individual is younger than 18 years from both age assessments. Mismatch 1: Individual is 18 years or older from skeletal age assessments and younger than 18 years from dental assessment. Mismatch 2: The individual is younger than 18 year from skeletal age assessment and 18 years or older from dental age assessment. Man-Whitney test was used to compare the mean of the two independent groups.

Results: The agreement was 79.5% for girls and 83.2% for boys. Over the 5year period there was a shift towards young applicants which resulted in a higher percentage of boys being estimated older from dental development than from skeletal development.

Discussion: The good agreement is encouraging and strengthens the final age assessment. The mismatch may in part be due to the grading system used to assess age from dental radiographs which is a different procedure than assessing age from hand/wrist radiographs. It is known that dental development shows greater biological variation, but this study indicate that this variation does not deviate much from skeletal development.

Conclusion: The results show that there is good agreement between age assessments based on dental and skeletal developments.