LETTER TO THE EDITOR

Validity of the assessment method of skeletal maturation by cervical vertebrae: a systematic review and meta-analysis

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To the Editor,

With great interest, we have read the article by Cericato et al¹ entitled “Validity of the assessment method of skeletal maturation by cervical vertebrae: a systematic review and meta-analysis”, which was published in *Dentomaxillofac Radiol* 2015; 44: 20140270. In this article, Cericato et al¹ performed a systematic review and a meta-analysis in order to answer the following question: is the cervical vertebrae maturation index effective in replacing hand–wrist radiograph (gold standard) in determining the pubertal growth spurt in patients undergoing bone growth?

In the above article, the findings of the meta-analysis showed that every article selected presented a positive correlation between skeletal maturation assessment performed by cervical vertebrae and carpal methods, with discrepancy of values between genders indicating higher correlation for the female gender (0.925; 0.878) than that for the male (0.879; 0.842). In addition, when the assessment was performed without gender separation, correlation was significant (0.592; 0.688) but lower in the cases when genders were separated.

The authors concluded that it is safe to affirm that both cervical vertebrae maturation indexes used in the present study are reliable to replace hand–wrist radiographs in predicting the pubertal growth spurt, considering that the highest values were found in female samples, especially in the method by Hassel and Farman.² However, we would like to point out that in the material and methods section, the authors fail to mention that “the statistical methodology was considered valid when Pearson’s or Spearman’s correlation tests were presented between both assessment methods studied (vertebral and carpal)”. The meta-analysis of

the correlation coefficient obtained was performed to analyze the results obtained in the studies that were part of the review.

In the conclusion section, the authors stated that questions such as reproducibility of the methods assessed and the possibility of assessing growth and development of the individual have not yet been clarified; so, elaboration of more specific studies for elucidation is required. In clinical or epidemiological dental research, variations in the interpretation of diagnostic criteria can have a marked effect on the reliability of subsequent analysis.³ In fact, we would like to state that several studies on the reliability of anthropometric measurements have been published in dentomaxillofacial radiology. Therefore, in this regard, it is worth clarifying that Pearson’s correlation coefficient provides only the association between two variables, but it does not measure reliability.³ In effect, Pearson’s correlation coefficient of nearly 1 may be obtained when one measure is approximately twice the second measure.⁴ However, despite the fact that one can nearly perfectly predict one measure from the other, the actual agreement is non-existent.⁴ Having said that, chances are that Pearson’s correlation coefficient may be misleading.⁴ A more suitable approach would be intraclass correlation coefficients, despite their limitations.^{4,5}

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