
Title

Comparison between an Expert Operator an Inexperienced Operator, and Artificial Intelligence Software: A Brief Clinical Study of Cephalometric Diagnostic

Abstract

Introduction: Artificial intelligence (AI) is constantly developing in several medical areas and has become useful to assist with treatment planning. Orthodontics and maxillofacial surgery use AI-based technology to identify and select cephalometric points for diagnostics. Although some studies have shown promising results from the use of AI, the evidence is still limited. Hence, additional investigation is justified.

Materials and Methods: In this retrospective study, 2 human operators (1 expert and 1 inexperienced) and 1 software analyzed 30 lateral cephalograms of individuals with orthodontic treatment indications. They measured 10 cephalometric variables and then 2 weeks later, repeated measurements on 30% of the sample. We evaluated the reliability of the measurements between the 2-time points and the differences in the means between the expert operator and the AI software and between the expert and inexperienced operators.

Results: There was high reliability for the expert operator and AI measurements, and moderate reliability for the inexperienced operator measurements. There were some significant differences in the means produced by the AI software and the inexperienced operator compared with the expert operator.

Conclusion: Although AI is useful for cephalometric analysis, it should be used with caution because there are differences compared with analysis by humans. © 2024 Lippincott Williams and Wilkins. All rights reserved.

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