Title: Diagnostic Accuracy of Artificial Intelligence, CBCT, and Clinical Examination in Detecting Number of Root Canals in Conventional and Retreated Maxillary and Mandibular Molars

NCT Number: “Pending”

Date: 29/10/2024

Statistical Analysis

Qualitative data were presented as frequencies and percentages. Friedman's test was used to compare between number of canals detected by the three methods. Kappastatistic was used to assess agreement between the threemethods. Kappa values ranging from 0.6 to 0.8 indicate good agreement while values ranging from 0.8 to 0.99 indicate very good agreement. Numerical data were explored for normality by checking the distribution of data and using tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk tests). All data showed normal (parametric) distribution except for length of canal division from the apex and percentage of canal unity data which showed non-normal (non-parametric) distribution. Data were presented as mean, standard deviation (SD), median and range values. For parametric data, Student's t-test was used to compare between correctly and incorrectly diagnosedcases. For non-parametric data, MannWhitney U was used to compare between correctly and incorrectly diagnosed cases. Binary logistic regression model was constructed using diagnosis (Correct/Incorrect) as the dependent variable. Treatment, molar type, inter-orifice distance, percentage of canal unity and Vertucci classification were the independent variables. The significance level was set at $P \leq 0.05$. Statistical analysis was performed with IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp. ROC (Receiver Operating Characteristic) curve was constructed to determine the diagnostic accuracy measures of AI in relation to CBCT. Comparison between areas under the ROC curve (AUC) were performed using z-test. ROC curve analysis was performed with MedCalc® Statistical Software version 19.5.1 (MedCalc Software Ltd, Ostend, Belgium; https://www.medcalc.org; 2020)