

Preparing Curved Canals Using Mtwo and RaCe Rotary Instruments: A Comparison Study

Authors : Mimoza Canga, Vito Malagnino, Giulia Malagnino, Irene Malagnino

Abstract : Objective: The objective of this study was to compare the effectiveness of Mtwo and RaCe rotary instruments, in cleaning and shaping root canals curvature. Material and Method: The present study was conducted on 160 simulated canals in resin blocks, with an angle curvature 15°-30°. These 160 simulated canals were divided into two groups, where each group consisted of 80 blocks. Each group was divided into two subgroups (n=40 canals each). The simulated canals subgroups were prepared with Mtwo and RaCe rotary nickel-titanium instruments. The root canals were measured at four different points of reference, starting at 13 mm from the orifice. In the first group, the canals were prepared using Mtwo rotary system (VDW, Munich, Germany). The Mtwo files used were: 10/0.04, 15/0.05, 20/0.06, and 25/0.06. These instruments entered in the full length of the canal. Each file was rotated in the canal until it reached the apical point. In the second group, the canals were prepared using RaCe instruments (La Chau-De-Fonds, Switzerland), performing the crown down technique, using the torque electric control motor (VDWCO, Munich, Germany), with 600 RPM and 2n/cm as follow: ≠40/0.10, ≠35/0.08, ≠30/0.06, ≠25/0.04, ≠25/0.02. The data were recorded using SPSS version 23 software (Microsoft, IL, USA). Data analysis was done using ANOVA test. Results: The results obtained by using the Mtwo rotary instruments, showed that these instruments were able to clean and shape in the right-to-left motion curved canals, at different levels, without any deviation, and in perfect symmetry, with a P-value=0.000. The data showed that the greater the depth of the root canal, the greater the deviations of the RaCe rotary instruments. These deviations occurred in three levels, which are: S2(P=0.004), S3(P=0.007), S4(P=0.009). The Mtwo files can go deeper and create a greater angle in S4 level (21°-28°), compared to RaCe instruments with an angle equal to 19°-24°. Conclusion: The present study noted a clinically significant difference between Mtwo rotary instruments and RaCe rotary files used for the canal preparation and indicated that Mtwo instruments are a better choice for the curved canals.

Keywords : canal curvature, canal preparation, Mtwo, RaCe, resin blocks

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