Universidade de São Paulo
Faculdade de Odontologia de Bauru

NEW iVAC™ APICAL NEGATIVE PRESSURE IRRIGATION AND ACTIVATION SYSTEM: ANTIMICROBIAL EFFECTIVENESS

COELHO, J. A. ; MENESES JUNIOR, N. S. ; DUARTE, M. A. H. ; RAMOS, C. A. S. ; ANDRADE, F. B.
Bauru Dental College, University of Sao Paulo, Brazil

SUMMARY:

The objective of the present study was to test a new ultrasonic-activated device that allows irrigation, agitation, and suction of the irrigation solution during use, aiming at the elimination of mixed biofilm and less extrusion of debris apically. MATERIAL AND METHOD: Extracted single-rooted human teeth contaminated with a mixed biofilm of Enterococcus faecalis and Streptococcus mutans were evaluated for intratubular decontamination and apical extrusion of debris after two irrigation protocols. Group 1: iVAC protocol, ultrasonic vibration of the solution through a polymer insert, simultaneous irrigation, and evacuation. Group 2: CUI protocol, using a metallic Irrisonic insert, simultaneous irrigation, and aspiration performed by the operator. Group 3: conventional irrigation, where there was no agitation of the irrigation solution. The material extruded during the different protocols was seeded to count bacterial colonies. Then, the teeth were sectioned longitudinally and analyzed for bacterial viability by laser scanning confocal microscopy in the LAS AF Lite and BioImage_L v2-1 software. RESULTS: the results showed that groups G1 and G2 were similar in intratubular decontamination; however, there was a more significant extrusion of bacteria to the periapical region in group G2 (CUI). Conclusion: it can be concluded that the results found by the iVAC are promising, targeting immunologically compromised patients, where there should be minimal periapical bacterial extrusion. More studies must be carried out on the new device.

Keywords: Therapeutic irrigation. Ultrasonic irrigation. Confocal microscopy.

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