ABSTRACT

Background: Irrigation is crucial for long term success in root canal treatment. The complex anatomy of root canal systems has limited our ability to clean and disinfect it predictably. Studies have shown that irrigant delivery in positive pressure irrigation producing a vapour lock effect. Purpose: To Analyze the difference of irrigant patterns between apical negative pressure (endovac) irrigation system and sonic activation (eddy) to root canal cleaning efficacy. Methodology: 27 human single-root mandibular premolar canals were instrumented using ProTaper Next rotary files up to size X3 with 2.5% NaOCl irrigation + methylene blue between each instrumentation. Prepared teeth were randomly divided three groups. Group I: positive pressure irrigation systems using closed-end (side vented) needle as control. Group II: apical negative pressure irrigation systems using endovac. Group III: sonic activation systems. After instrumentation and irrigation teeth were sectioned longitudinally bucco-lingually halves then cut in the apical third part and examined under microscope for working length evaluation. Irrigant pattern examined with spectofotometry. Data obtained were analyzed using Anova analysis of variance followed by Shapiro-wilk for normality test and Post Hoc test for individual comparison. Results: There is no significant difference (p<0.05) between apical negative pressure (endovac) and sonic activation (eddy) for reaching the working length. There is significant difference (p<0.05) between apical negative pressure (endovac) and sonic activation (eddy) for lateral penetration to the canal wall. Conclusion: It showed that irrigants activation using eddy has a better streaming in terms of lateral penetration to the canal wall and no difference in terms of capability of reaching the working length compare with endovac.

Keyword: Root canal irrigation, apical negative pressure irrigation, sonic activation irrigation system, irrigants pattern