

Irrigation efficacy of Calcipex II during cleaning and shaping on *Enterococcus faecalis*

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Abstract

Background and Aims: Microorganisms and their by-products are responsible for pulp and periapical diseases. The main purpose of root canal treatment is to eliminate these microorganisms from the root canal system. In order to achieve this purpose, complete mechanical and chemical cleaning of the root canal is mandatory. Many studies have shown that mechanical irrigation of the infected root canal system will not completely eliminate the microorganisms and the antibacterial properties of these solutions must be considered. The aim of this study was to investigate the antibacterial capability of calcipex II as an irrigant during cleaning and shaping of infected root canals.

Materials and Methods: In this invitro investigation, 60 single-rooted permanent anterior teeth were selected. Crowns of the teeth were cut to obtain a 14 mm length in all samples. Initial instrumentation of the canals was performed to achieve similar diameters in all canals. The apical foramen of the root were sealed with composite resin and then all samples were sterilized in autoclave. Then, the teeth were infected with *Enterococcus faecalis* and were randomly divided into four groups of 15. Final cleaning and shaping with one of the irrigants were performed in each group. After incubation, a spectrophotometer was used to count the number of obtained colonies in each sample. One-way variance test was used for statistical analysis.

Results: The antibacterial effect of Calcipex II on *E. Faecalis* was less than sodium hypochlorite and chlorhexidine.

Discussion and Conclusion: The results of this study indicated the strong antibacterial property of chlorhexidine. Considering the long-standing antibacterial property of chlorhexidine and biocompatibility of chlorhexidine with the periapical tissue, this solution can be an alternative choice for irrigation of infected canals.

Key words: Antimicrobial activity, Chlorhexidine , CalcipexII, Canal irrigant , Sodiumhypochlorite