

عنوان مقاله:

Comparison of Antibacterial Effects of Photodynamic Therapy and An Irrigation Activation System on Root Canals Infected With Enterococcus faecalis :
An In Vitro Study

محل انتشار:

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خلاصه مقاله:

Abstract Introduction: Enterococcus faecalis is a resistant bacterium which is the most abundant species in infected root canals. Photodynamic therapy (PDT) is a method for killing the bacteria with active Oxygen radicals generated in a photosensitizer when exposed to centralized light. Furthermore, as a new method of canal disinfection, a variety of irrigation activation systems have been introduced, one of which is GentleFile (GF) with rotary movements and spiral effects for antibacterial action. This study aimed to compare the effectiveness of the two mentioned methods when used with and without Sodium Hypochlorite in eliminating E. faecalis from infected root canals. **Methods:** Fifty-eight uniradicular teeth were randomly divided into 4 experimental groups of 14. Two specimens were selected for later scanning electron microscopy in order to screen the procedure steps. In each experimental group, 10 samples were selected to be treated with GF or PDT; 3 of them were selected as positive controls and the other one sample was chosen as a negative control. Experimental groups were as follows: (1) Irrigation activation system, (2) Irrigation activation system + sodium hypochlorite, (3) PDT, and (4) PDT+ sodium hypochlorite. The specimens were then cultured for a bacterial colony count. **Results:** The decrease in the bacterial count after the treatment with the irrigation activation system was 99.8% ($P = 0.011$) and when the system was used with sodium hypochlorite, it was 100% ($P = 0.001$). The antibacterial effect of PDT was 90.08% ($P = 0.011$) and it was 99.7% when PDT was combined with sodium hypochlorite ($P = 0.011$). **Conclusion:** All four methods can be administered as complementary methods in root canal disinfection. According to the results of disinfection in the experimental groups of current study it is concluded that integration of new technologies such as activation irrigation system or PDT in Combination with NaOCl ameliorates disinfection of root canal and can provide several advantages in the endodontic outcome. **Keywords:** Enterococcus faecalis Photodynamic therapy GentleFile Irrigation activation system Sodium hypochlorite

کلمات کلیدی:

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