

عنوان مقاله:

Comparison of Antibacterial Effects of Photodynamic Therapy, Modified Triple Antibiotic Paste and Calcium Hydroxide on Root Canals Infected with Enterococcus Faecalis : An In-Vitro Study

محل انتشار:

مجله لیزر در علوم پزشکی، دوره 10، شماره 0 (سال: 1398)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

Abstract Background: A pivotal issue to achieve success in the treatment of the root canal is root canal disinfection. One of the most important bacteria that infect root canal is enterococcus faecalis. This study seeks to examine the effectiveness of three methods for disinfecting the root canal: photodynamic therapy, modified triple antibiotic paste (MTAP) and calcium hydroxide. **Method and material:** 62 single-rooted extracted anterior teeth were collected. After cleaning and disinfection, crowns were cut at the CEJ point. The root canals were shaped to the working length up to file F3 protaper (F1, F2, F3). EDTA 17% and sodium hypochlorite 2.5% were used for 5 minutes to wash and remove the smear layer, and then the apical foramen was sealed using composite. After that, the teeth were sterilized in an autoclave at 121°C for 15 minutes. Then 10 samples were taken randomly as the negative control. The remaining samples were immersed and cultivated in a suspension containing enterococcus faecalis for 21 days. Then samples were divided into 5 groups: two positive control groups, one group treated with the antibiotic paste with the concentration of 1mg/ml, one group treated with calcium hydroxide, and one group treated with photodynamic therapy. Then, to collect the biofilm, the protaper file F4 was used. After that, the microbial suspension was provided and counting the colonies to compare the groups was carried out. **Results:** The findings indicated that the amount of CFU/mg of MTAP samples, including clindamycin, metronidazole and ciprofloxacin in the concentration of 1mg/ml and photodynamic therapy and calcium hydroxide was lower than that in the control group. Antibiotic paste, cleansed the root canal up to 99.9%. Photodynamic therapy reduced the amount of CFU/mg to 98.8%, and calcium hydroxide reduced the amount of CFU/mg to 94.13%. **Conclusion:** Using photodynamic therapy causes a reduction in biofilm and inhibits the growth of enterococcus faecalis bacterium. In addition, in this study MTAP with the concentration of 1mg/ml was used, which expunged the bacteria completely. Meanwhile, calcium hydroxide had the weakest effect of all on the enterococcus faecalis bacterium **Keywords:** Enterococcus faecalis MTAP Photodynamic therapy Calcium hydroxide Root canal disinfection

کلمات کلیدی:

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