عنوان مقاله:

Comparing the Efficacy of Toluidine Blue, Methylene Blue and Curcumin in Photodynamic Therapy Against Enterococcus faecalis TB-, MB-, and Curcumin-Mediated PDT Against E. faecalis

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خلاصه مقاله:

Abstract Introduction: Antimicrobial photodynamic therapy (aPDT) as a supplement to the conventional root canal preparation has shown promising results. Previous studies have adopted various combinations of light sources and PSs, as well as different light parameters, PS concentrations, and methods for biofilm cultivation, which makes it difficult to compare the disinfection efficacy of different PDT protocols. The aim of the present study was to compare the efficacy of three Photosensitizers (Toluidine blue, Methylene blue, and Curcumin) in PDT using LED against Enterococcus faecalis . Methods: Root canals of ۵۴ single-rooted extracted teeth were prepared using ProTaper Gold rotary system and were incubated with Enterococcus faecalis for three weeks. They were then randomly divided into five experimental groups and a positive control group: NaOCL (Irrigation with ۲.۵% NaOCl for ۳۰ seconds); NaOCl+MB (NaOCl irrigation followed by MB-PDT); NaOCl+TB (NaOCl irrigation followed by TB-PDT); NaOCl+CUR (NaOCL irrigation followed by curcumin-PDT); curcumin solvent (۱% ethanol+۱% BSA); positive control (irrigation with normal saline). Sampling was done by collecting dentin shavings from the root canals, and colony-forming units were determined for each treatment group. The data were analyzed by Kruskal-Wallis and Mann-Whitney U tests. Results: In all treatment groups the mean values of CFU decreased by ۹۹% relative to positive control group.The highest reduction in CFU mean was observed in NaOCl+TB group followed by NaOCl+CUR, NaOCl+MB, NaOCl, and curcumin group, respectively. The reduction in CFU in NaOCl+TB group was significantly more than that of NaOCl group (P value=۰.۰۰۱), while there were no significant differences among the NaOCl(P value=۰.۰۱۳), NaOCl+CUR(P value=۰.۰۰۷), and NaOCl+MB(۰.۰۰۲) groups. Conclusion: Within the limitations of this study the adjunction of PDT using ۰.۵ mg/ml TB Photosensitizer and LED to NaOCl irrigation increased its antibacterial efficacy against E. faecalis and could be an effective adjunctive technique in root canal disinfection. Keywords: Antimicrobial photodynamic therapy; LED; Enterococcus faecalis; Toluidine blue; Methylene blue, Curcumin

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا: