

Calcium hydroxide has limited effectiveness in eliminating bacteria from human root canal.

DATA SOURCES: Searches of Cochrane Central Register of Controlled Trials (CENTRAL), Medline, Embase, six thesis databases (Networked Digital Library of Theses and Dissertations, Proquest Digital Dissertations, OAIster, Index to Theses, Australian Digital Thesis program and Dissertation.com) and one conference report database (BIOSIS Previews) were undertaken. There were no language restrictions. **STUDY SELECTION:** Studies were included in which participants had a noncontributory medical history, presented with mature teeth and radiographic evidence of periapical bone loss (as an indication of pre-operative canal infection), whose selected root canals had not previously received any endodontic treatment, and who had undergone nonsurgical root canal treatment during the study in which calcium hydroxide had also been used to seal in the canals. In addition, it was required that microbiological sampling had been undertaken during the course of treatment, before canal preparation, after canal preparation and after canal medication. Aerobic and anaerobic culturing techniques were performed on all samples. The treatment outcomes were stated in terms of positive and negative canal cultures. **DATA EXTRACTION AND SYNTHESIS:** All data were extracted in the same manner using a standardised data extraction sheet. Between-study heterogeneity was assessed using the standard chi-squared test or Q-statistic. The principal measure of treatment effect (antibacterial efficacy) was risk difference, which is normally defined as the risk in the experimental group minus risk in the control group. For the purpose of this study, it is given as the difference in the proportion of bacteria-positive cultures pre- and post-medication. **RESULTS:** Out of the eight studies (257 cases) included, one study used a small control group (in which canals were left empty, and no intracanal medicament was used between appointments). The other seven studies simply compared the frequency of positive cultures before and after calcium hydroxide medication. Six studies demonstrated a statistically significant difference between pre- and postmedicated canals, whereas two did not. There was considerable heterogeneity among studies. The pooled risk difference was 21% (95% confidence intervals, 6-47%). The difference in the proportion of cases positive for bacteria before and after treatment was not statistically significant ($P = 0.12$). **CONCLUSIONS:** Based on the current best available evidence, calcium hydroxide has limited effectiveness in eliminating bacteria from human root canals, when assessed by culture techniques. The quest for better antibacterial protocols and sampling techniques must continue to ensure that bacteria can be reliably eradicated prior to obturation.