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Systematic Review of the Effect of Different Irrigant activation methods on the intra-canal bacteerial reduction

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 July 2024 and was last updated on 12 July 2024.

INTRODUCTION

Review question / Objective Which irrigation activation techniques are the most effective in Intracanal Bacterial Reduction? Aim of the study: Effective root canal disinfection is crucial in endodontic therapy to eliminate intracanal pathogens and prevent reinfection. Irrigants play a significant role in this process by dissolving tissue debris and bacteria within the root canal system.

Condition being studied This review specifically focuses on randomized clinical trials that examine various irrigant activation methods to eliminate bacterias from the root canal system. II. Background The comprehensive elimination of bacteria and the thorough cleanup of their byproducts from the root canal system are essential to the effectiveness of endodontic therapy. Endodontic therapy fails most frequently because infection is unaffected by improperly instrumented, irrigated, medicated, or obturated canals (Siqueira and Rôças, 2022).

METHODS

Participant or population Microorganisms in the root canal system.

Intervention Various irrigant activation techniques during endodontic treatment.

Comparator Conventional needle irrigation (CNI). The most popular ones are manual dynamic activation (MDA), passive ultrasonic irrigation (PUI), apical negative pressure irrigation (ANP), and sonic irrigation (SI).

Study designs to be included Systematic review.

Eligibility criteria Single rooted, single canals teeth with endodontic infection, diagnosed with pulp necrosis and/or symptomatic or asymptomatic apical periodontitis.

Information sources PubMed, Scopus, Web of Science, Cochrane library, Wiley, IEJ.

Main outcome(s) Efficacy of different irrigation activation mechanism in eradicating microorganisms from the root canal system.

Quality assessment / Risk of bias analysis Review of data on systematic activation irrigation.

Strategy of data synthesis The obtain data will be tabulated and statistically analyzed to interpret the results of this proposed study.

Subgroup analysis In adults permanent teeth.

Sensitivity analysis No relevant.

Country(ies) involved Brazil, Australian, United States.

Keywords Irrigant activation, ultrasonic irrigation, sonic irrigation, apical negative pressure, manual dynamic agitation, laser activated irrigation.

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