

**PERAN LARUTAN IRIGASI *MIXTURE TETRACYCLINE CITRIC ACID AND DETERGENT (MTAD)* PADA PERAWATAN SALURAN AKAR
(*NARRATIVE REVIEW*)**

INTISARI

Keberhasilan perawatan saluran akar tergantung dari eliminasi bakteri. Irigasi saluran akar menjadi kunci utama dalam keseluruhan desinfeksi saluran akar. Irigasi saluran akar merupakan prosedur memasukkan larutan tertentu dengan tujuan membersihkan saluran akar dari dentin dan jaringan nekrosis. Larutan irigasi mampu menjangkau area yang tidak dapat dijangkau oleh instrumen mekanis. *Mixture Tetracycline Citric Acid and Detergent (MTAD)* merupakan larutan irigasi pertama kali dikenalkan tahun 2003. Tujuan *narrative review* ini adalah untuk mengulas peran larutan irigasi *Mixture Tetracycline Citric Acid and Detergent (MTAD)* pada perawatan saluran akar.

Database yang digunakan dalam pencarian *narrative review* ini antara lain *Science Direct, SpingerLink, PubMed, Google Scholar, Web of Science* dan *PMC*. Kata kunci yang digunakan dalam pencarian yaitu *mixture tetracycline citric acid and detergent, endodontics, root canal treatment, antibacterial, smear layer, biocompatibility*. Pencarian dilakukan menggunakan Boolean Operators (AND/OR) dan seleksi literatur berdasarkan kriteria inklusi dan eksklusi.

Sejumlah 19 referensi didapatkan dari hasil pencarian literatur. Hasil yang didapatkan dari referensi tersebut menyatakan bahwa penggunaan MTAD sebagai bahan irigasi memiliki daya antibakteri dalam mengeliminasi bakteri *Enterococcus faecalis* pada infeksi saluran akar. Larutan MTAD optimal dalam melarutkan lapisan *smear layer* dari saluran akar ketika dikombinasikan dengan NaOCl serta tidak merusak struktur tubuli dentinalis. Larutan MTAD tidak mengganggu diferensiasi sel osteoblas dan fibroblas dentin. Hal tersebut menunjukkan biokompatibilitas MTAD yang baik serta toksisitasnya rendah.

Kata kunci: Perawatan saluran akar, larutan irigasi, *Mixture Tetracycline Citric Acid and Detergent (MTAD)*

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ABSTRACT

A successful root canal treatment depends on the elimination of bacteria. Root canal irrigation is the key to total root canal disinfection. Root canal irrigation is a procedure that inserts certain fluids with the purpose is cleaning root canal from dentin and necrotizing tissue. Irrigation solutions can reach the areas which cannot be reached by mechanical instruments. Mixture Tetracycline Citric Acid and Detergent (MTAD) was introduced as an irrigating solution in 2003. This narrative review aims to describe the role of MTAD in root canal treatment.

The databases used in this narrative review were PubMed, Google Scholar, Web of Science, and PMC. The literature search was conducted using the Boolean Operator, with the keywords used in this narrative review being mixture tetracycline citric acid and detergent, endodontics, root canal treatment, antibacterial, smear layer, and biocompatibility. The articles were then screened according to inclusion and exclusion criteria.

A total of 19 articles were obtained from the literature search. The literature review result showed that the use of MTAD as irrigating solution has antibacterial activity that can against *Enterococcus faecalis* in root canal infection. The MTAD solution is optimal in removing endodontic smear layers when combined with sodium hypochlorite (NaOCl), and it does not damage the structure of dentinal tubules. The MTAD solution does not disturb osteoblast and fibroblast differentiation. These results indicated the biocompatibility and the cytotoxicity of MTAD was very minimal.

Keywords: Root canal treatment, irrigating solution, Mixture Tetracycline Citric Acid and Detergent (MTAD)