



Homeopathic Consideration in Endodontics

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ABSTRACT

Efficacy of calcium hydroxide was evaluated when Acid benzoicum was used as an vehicle of delivery. The result showed that acid benzoicum and calcium hydroxide combination was had superior anti microbial activity against E. fecalis than calcium hydroxide and saline.

Keywords: Anti microbial activity, Endodontics, E. fecalis, NaOCl and EDTA

INTRODUCTION

Endodontics is that branch of dentistry that deals with treating the pulp and root canals of the teeth. Root canal treatment is the major highlight of this branch of dentistry. The soul of this branch is to attempt all possible ways to retain the pulpally diseased teeth and avoid removal of natural teeth.

The success of Endodontics therapy undoubtedly relies on disinfection of root canal space, aiming towards removal of infectious microbes and preventing re infection. The predictability of successful root canal treatment is directly proportional to amount of disinfection achieved in the root canal. In a attempt to increase the effectiveness of treatment the protocol includes antimicrobial irrigating solutions and intracanal medicaments.

Intracanal medicaments have been an effective way and it can be aptly designated as “get and forget medicine”. The patient has just

to get the medicine placed in root canal, till the next scheduled appointment and need no patient compliance.

Calcium hydroxide is the most recognized, tested and studies intracanal medicament so far. Ever since it was discovered by its use as intracanal medicament is tremendous and the impact is undeniable. As the diseases have emerged and the causative microbes have evolved to be more resistant, it is a challenge for calcium hydroxide to be effective against them, specially *E. fecalis*, which is one of the most stubborn bacteria found in case of failed root canal therapy.

Hence this study was taken up to determine the effectiveness of calcium hydroxide as an intracanal medicament when the delivery vehicle (mixing solvent) is a homeopathic agent acid benzoicum, so as to overcome the resistance developed by *E. fecalis* to calcium hydroxide

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METHODS AND MATERIALS

40 Recently extracted intact single rooted human single rooted single canal teeth were selected and sterilized Access opening was done, working length determined and all canals sequentially prepared using step-back technique up to size # 35K master apical file under irrigation with saline.

Irrigation protocol included NaOCl and EDTA wash with intermediate saline flush .nail varnish was applied on the root of all the teeth. Teeth placed in a closed container containing 4 ml of brain heart infusion (BHI) broth, sterilized by autoclaving at 121 °C for 20 min and incubated for 24 h at 37 °C to confirm sterility by absence of turbidity.

A suspension of micro organisms was prepared in sterile containers. 2 ml of the sterile BHI broth from each tube were replaced by 2 ml of the prepared mixed microbial suspension, and then the test tubes were closed and incubated at 37 °C for 24 hours.

After contamination period, each specimen was removed from its test tube under aseptic conditions in the laminar air flow chamber and irrigated with 5 ml of sterile saline and dried with sterile paper points # 35. The specimens were divided randomly into equal groups I (Calcium hydroxide and saline)

and group II(Calcium hydroxide and acid benzoicum) according to the intra-canal medications used. Intra canal medicament was introduced in the root canal system using lentulo spirals and hand file .the orifice was sealed with cavit not less than 3 mm in thickness. After incubation period, the intra-canal medications were removed. The root canals were irrigated using sterile saline solution and then dried with sterile paper points # 35K left in the root canal for 1 min to absorb the canal fluid and placed in sterile Eppendorf test tube containing 0.5 ml of sterile saline, vortexed for 30 s, and this suspension was represent the specimen taken from the main canal lumen.

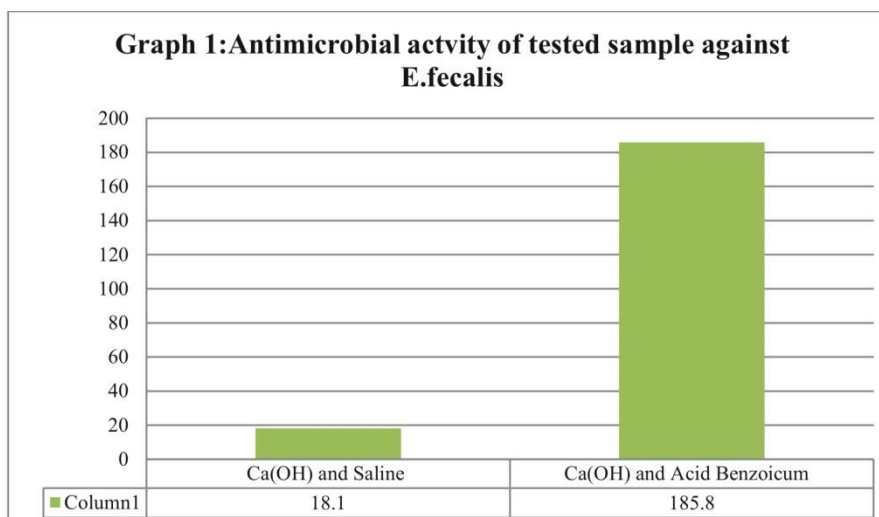
Sterile loops were standardized to carry 1µL of the microbial suspension to be seeded on the three media specific for the growth of the tested microorganisms.

BHI blood agar for counting of *E. faecalis* colonies. The plates were incubated at 37 °C for 7 days. Growing colonies were counted and recorded as colony forming units CFU All the collected, tabulated and statistically analyzed. Analysis of variance ANOVA was performed according to the computer program SPSS Version 17for Windows.

RESULT

Table 1: Calculated colony count of e fecalsi for tested samples

S.N.	Study Sample	Number of Colonies (Mean ± S.D.)
1.	Group I (Calcium Hydroxide)	185.8±3.01
2.	Group I(Calcium Hydroxide and Acid Benzoicum)	18.1±2.55



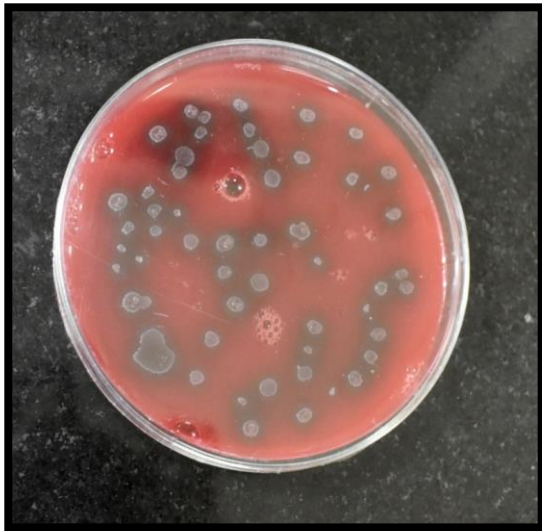


Fig. 1: E fecalsi colonies seen with group I



Fig. 2: E Fecalis colonies seen with group II

DISCUSSION

Calcium hydroxide is effective against microbes especially in primary endodontic infections. The result showed that calcium hydroxide in combination with acid benzoicum had greater antimicrobial activity. Table I shows the mean CFU count for acid benzoicum was 185.8 and that for calcium hydroxide and saline was 18.1. There was additive effect of acid benzoicum on the antimicrobial effect of Calcium Hydroxide. Simon et al. demonstrated that the vehicle can exert a great influence on the release of ions. ¹so far the antimicrobial effect of delivery vehicle has not been explored in great extent. Acid benzoicum is a homeopathic remedy prepared from the Benzoic acid. Benzoic acid is an organic acid derived from the gum of the

plant of *Calophyllum inophyllum*. *Calophyllum inophyllum* is ever green plant present in tropical countries. Homeopathic medicines are prepared from many sources i.e. plant, animal, mineral sources, *Imponderabilia*, *Nosodes* and *Sarcodes*. Homeopathy/homoeopathy is an alternative system of medicine; it is a branch of medical science in which very diluted substances are used to cure the diseases (Ahmad, 2017).

It is derived from two word homos means same and pathos means sufferings/diseases. Homeopathy is based on principal of similarity i.e., likes cure likes. Acid benzoicum have prominent action in the treatment of tonsillitis, fungal infection, allergy, autism, vomiting, nausea, ulceration and gouty rheumatism in animal and human model.

The *in vitro* ineffectiveness of calcium hydroxide mixed with inert vehicles may be related to the fact that culture media possess buffer substances in their formulations and also due to the vehicle diffusion ability. Therefore, although calcium hydroxide could have diffused across the medium, the pH levels reached were not sufficient to present inhibitory activity (Nerwich, 1993; Siqueira, 1999).

Several researchers have assessed the influence of vehicles or agents mixed with Ca(OH)_2 Gomes et al. (2002) reported that Ca(OH)_2 mixed with water or glycerin showed little or no effect. Same result was observed in our study where the CFU was maximum for all the tested microbes from the calcium hydroxide and saline sample (Gomes, 2002; Siqueira, 1997).

To a great extent various aqueous, viscous and oil based vehicles are examined but homeopathic agents still are unexplored (Seyed, 2009).

Use of homeopathy in dentistry is limited. There is scarcity of literature regarding the homeopathy in endodontic; in fact this study is one of its kind that investigates the combination of homeopathy in root canal system. The reason for not using homeopathy in main stream.

Based on the result obtained from this study further elaborate investigations are warranted to determine the influence of such combinations on host, microbe and bacteria .this study proves that homeopathic agents have additive effect of antimicrobial potential of Calcium Hydroxide. This study definitely encourages further investigation as we are facing the crisis of antibiotic resistance homeopathy is a ray of hope.

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