

Oral Presentation IV

Effectiveness of controlled release device against *E. faecalis* : in vitro study

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I. Objectives

Intracanal medicament with antibacterial action is required to maximize the disinfection of the root canal system. The purpose of this study was to evaluate the efficacy of 2% chlorhexidine digluconate(CHX) and controlled release device(CRD) containing 20% CHX and chitosan coating, compared to calcium hydroxide as intracanal medicament against *E.faecalis*.

II. Material and Methods

One hundred and twenty intact freshly extracted bovine incisors were used and were placed 0.5% NaOCl. Middle 1/3 portion of roots were sliced into 4mm thick section and cementum was removed using diamond burs and external diameter was approximately 6mm. Internal diameter was standardized with an ISO 023 round bur and smear layer removed using 5.25% NaOCl, 17% EDTA which were transferred to an ultrasonic bath for 10 min. Sterilization of the specimens was carried out by autoclaving in Brain Heart infusion(121° C, 2.5 atm) for 20 min. Then *E.faecalis* was inoculated to specimens and incubated at 37° C for 7days. Following the contamination period, the specimens were fixed at petri dish and divided into 5 groups according to the intracanal medicament and each group had 24 specimens. Group1(control group) was filled with sterile saline, group 2 was filled with 2% CHX, group 3 was filled with 20% CHX core(proto type)+2% CHX, group 4 was filled with 20% CRD(20% CHX core and chitosan coating, proto type)+2% CHX, group 5 was filled with calcium hydroxied paste. The specimens were incubated at 37° C according to the experimental periods : 1, 4, 7 days.

At the end of each test period, the dentin of specimens were removed used ISO sized 027,031 round bur, sequentially. The dentin chips were collected into test tube containing BHI and neutralizers and incubated at 37° C for 24h. Following incubation, the optical density of the medium was measure by means of a spectrophotometer(530nm).

III. Results

1. Group 5 (Calcium hydroxide) showed medium turbidity at all experiment times
2. Group 2, 3, 4 (Chlorhexidine digluconate) had more superior result than group 5
3. Group 4 did not show medium turbidity

IV. Conclusions

Controlled release device coating with chitosan inhibited the growth to the *E.faecalis* after 7days.