

<POSTER PRESENTATION II>

Poster Viewing
Poster Discussion(Free communication)

10:00-17:00(In front of Room 402)
14:30-16:00

In vivo study on the biocompatibility of newly developed calcium phosphate-based root canal sealers

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I. Objectives

The purpose of this study was to compare in vivo the biocompatibility of new calcium phosphate-based root canal sealers(CAPSEAL I, CAPSEAL II) with another type of commercially available calcium phosphate sealer (Apatite Root Sealer type I, Apatite Root Sealer type II) and zinc oxide-eugenol-based sealer (Pulp Canal Sealer EWT) after implantaion in rat subcutaneous tissue.

II. Materials and Methods

64 Sprague-Dawley rats were used. There were five groups of three animals each for experimental period of 1,2,4, and 12 weeks. The teflon tubes, 5 mm in length with an inner diameter of 1.5 mm, were washed with ethanol and distilled water and autoclaved. After anesthesia four subcutaneous pockets (depth > 10 mm) were prepared in each animal. Each tube containing freshly mixed sealer was implanted into each pocket. Empty teflon tubes were used as controls. By the end of each period the animals were sacrificed by ether inhalation. The tubes were removed with the surrounded tissue. After tissue processing for H-E staining and histopathologic examination, tissue reactions were graded as mild (1), moderate (2), and severe (3) according to the criteria suggested by Olsson et al. and Ørstavik and Mjör. Data were statistically analyzed with the Kruskal-Wallis test. The biocompatibility of the materials was interpreted by the criteria of Federation Dentaire International(1980).

III. Results

Conclusions

tissue reactions of all the root canal sealer groups showed more than moderate inflammation. However, their inflammatory reaction decreased with time. The tissue reactions at 12 weeks were significantly lower than those at 1 week ($p < 0.05$). There was no statistically significant difference among the test material groups ($p > 0.05$).

2. Apatite Root Sealer II group showed the most stronger inflammation than other sealer groups for experimental periods except it showed similar reactions to Pulp Canal Sealer EWT at 1 and 12 weeks.
3. New calcium phosphate-based sealer groups showed lower inflammation than other sealer groups in all experimental periods. Their tissue reactions were less than moderate inflammation after 4 weeks.
4. All the root canal sealers showed the acceptable biocompatibility.