♦025

IL-6 and IL-10 in experimentally induced rat pulpal inflammation

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IL-6 and IL-10 are known to be inflammatory cytokines that mediate host response to invading microorganisms or pathogenic antigen. But the roles of these cytokines in pulpal inflammation are not well established. The objective of this study was to investigate the concentrations and the roles of IL-6 and IL-10 in the pulpal inflammation associated with gram-negative bacteria, P. nigrescens. We exposed the pulps of rat mandibular incisors and inserted sterile cotton in control groups and inoculated P. nigrescens in experimental groups. After 1, 2 and 5 days, the teeth were extracted and pulp tissues were removed. Concentrations of IL-6 and IL-10 were measured by ELISA and data were analyzed by Mann Whitney rank sum test.

concentrations		Mean Conc ± S.D(pg/μg protein)		
		1 st day	2nd day	5 th day
IL-6	Control (n=27)	0.368(±0.143)	0.421(±0.183)	0.605(±0.193)
	Experimental (n=31)	0.585(±0.240)	0.588(±0.255)	0.778(±0.321)
IL-10	Control (n=26)	0.033(±0.012)	0.067(±0.013)	0.055(±0.027)
	Experimental (n=24)	0.066(±0.022)	0.072(±0.021)	0.069(±0.020)

The concentrations of interleukin-6 in Prevotella nigrescens groups were higher than those in the control groups on the 1st ($P<0.05$), 2nd, and 5th day of pulpal irritation. The concentrations of interleukin-10 in Prevotella nigrescens groups were higher than those in the control groups on the 1st ($P<0.05$), 2nd, and 5th day of pulpal irritation. IL-10 to IL-6 ratios (IL-10/IL-6) were higher on the 2nd day compared to 1st day in the control groups ($P<0.05$) and Prevotella nigrescens groups. The concentrations of IL-6 were significantly higher than IL-10 in all Prevotella nigrescens groups and control groups. ($P<0.05$) The higher concentrations of interleukin-6 and interleukin-10 in Prevotella nigrescens groups than those in the control groups suggest that Prevotella nigrescens may have a role in developing pulpal inflammation by stimulating the production of IL-6 and IL-10.

♦026

DETECTION OF BLACK-PIGMENTED BACTERIA IN INFECTED ROOT CANALS

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Black-pigmented bacteria anaerobes have been implicated in the endodontic infections. This group of microorganisms includes Porphyromonas endodontalis, Porphyromonas gingivalis, Prevotella intermedia, and Prevotella nigrescens. The organisms display a wide variety of virulence factors that may be pertinent to acute endodontic infections.

The aim of this study was to identify P. endodontalis, P. gingivalis, P. intermedia, P. nigrescens by using special potency disk test, filter paper spot test, 16S rRNA gene-directed PCR, and API 32A.

Microbial samples were collected from root canals of 33 intact teeth with necrotic pulp and/or apical periodontitis. Conventional laboratory methods were used for identification of the strains of black pigmented bacteria anaerobes. Eighteen of 33 (54.5%) samples were positive for the growth of black-pigmented bacrteria. Five colonys were cultured from each pure cultured colonies from Brucella agar plate. 77 colony were positive for the growth of black-pigmented bacteria.

33 of 77 (42.6%) were identifed as P. nigrescens, 10 of 77 (12.9%) were P. gingivali 6 of 77 (7.8%) were P. endodontalis, and 10 of 77 (12.9%) was P. intermedia.

On the contrary the reference strains of P. nigrescens, experimental strains of P. nigrescens was sensitive to kanamycin in special potency disk test.

16S rRNA gene PCR and API test after rapid presumptative identification methods, such as special potency disk test and filter

paper spot test, would be accurate detection methods for black-pigemented bacteria.

♦027

Pulpal and Periapical Reaction to Formocresol and Depulpin in Pulpotomized Rat Teeth.

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One fifth dilution of formocresol is usually used for pulpotomy of primary teeth and emergency pulpotomy of permanent teeth. Recently Depulpin (VoCo., Germany) gains popularity as devitalizing agent during root canal therapy in spite of high concentration of 49 % paraformaldehyde. But there are not enough publications about the reaction of dental pulp and periapical tissue caused by Depulpin. Therefore, This study was performed to evaluate the histological changes in pulp and periapical tissue of rat after pulpotomy using formocresol and Depulpin. Maxillary first molar of Sprague-Dawley rats were used for pulpotomy. Rats were sacrificed after 2 days, 4 days, 1 week, 2 weeks, 3 weeks and 4 weeks respectively. Specimens were histologically observed by light microscope and compared with normal pulp and periapical tissue. The obtained results were as follows.

1. Formocresol group A zone of fixed tissue, in which odontoblasts could clearly be defined, was present directly underneath the pulpotomy material in almost all teeth of this group. This was followed by an area of necrotic tissue which resembled dried out fibrous tissue with no cellular detail except some pyknotic nuclei. In the specimens of after 2 days, 4days, 1week, 2weeks in which vital tissue was present, it was separated from the fibrous area by a zone of inflammation. In the specimens of after 3 weeks and after 4 weeks, inflammatory infiltrate was in the periodontal ligament opposite the apical foramina of the teeth.
2. Depulpin group The area of necrotic tissue which had no cell and fiber, was present adjacent to the dressing. This was followed by dried out fibrous tissue with no cellular detail except some pyknotic nuclei. In the specimens of after 2 days, a short stump of vital pulp with odontoblasts was present at the end of the canal. In the specimens of after 4 days and after 1week, inflammatory infiltrate was in the periodontal ligament. In the specimens of after 2 weeks and after 3 weeks, severe root resorption and necrosis of periapical tissue opposite the root resorption site were defined. In the specimens of after 4 weeks, periapical lesion which consist of necrotic tissue surrounded by a fibrous connective wall, was finded.

The results indicated that Depulpin can cause more adverse reaction to dental pulp and periapical tissue than formocresol, and further studies are needed for its clinial use with safety.

♦028

Comparison of polymerization shrinkage between halogen light curing unit and PAC

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In these days, as the patients requirements on ethetics are getting greater, so the restorative materials which match well with natural teeth colors are being developed. One of those materials is the composite resin. When we fill the composite resin into the prepared cavity, it makes some clinical problems because it shrinks during the polymerization. To resolve these problems, first we must have sufficient understandings on the polymerization of composite resin. We have done this research to compare the polymerizing patterns between 3 types of composite resin(which are on sale; Z100, Z250, Synergy Duo Shade) and the compomer(Dyract AP) using the Linometer. This linometer is the apparatus which calculates the amount of linear shrinkage of resin by non-contacting displacement gage, and finally gives us the volumetric shrinkage rate. Using this, we can know the total shrinkage amount and also the continuous variation amount, so we can make more precise comparative-analysis about the polymerizing patterns. In this research, we used the halogen visible curing light(3M XL 2500) and the plasma arc curing light(Appolo 95E), and compared initial/final shrinkage rate each of it. The results came out like this that there was no polymerization shrinkage rate difference between curing 60sec using visible light and curing 10sec using plasma arc light and leave it until 60sec. But polymerization shrinkage amount during initial 10sec was