

acid 생성률이 증가하였고, 포도당을 넣어 배양한 경우가 포도당 없이 배양한 경우보다 pH가 현저하게 감소하였다.

4. *B. intermedius*의 성장은 환경의 pH가 낮아짐에 따라 억제되었다.
5. *S. mutans*의 *B. intermedius*에 대한 성장억제는 대부분의 lactic acid의 감소에 의한 것임을 볼 수 있었다.

## ● 상아질 지각과민증 치료후 임상 및 주사전자현미경적 관찰

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치아의 교모나 마모, 또는 치은 퇴축에 의한 상아질 지각과민증은 치료가 곤란하고 환자나 치과 의사가 치면 세균막을 효과적으로 제거하는 데에 큰 장애를 주고 있다.

이 연구의 목적은 치은퇴축으로 인한 상아질 지각과민증을 보이는 치아에 2% sodium fluoride로 iontophoresis를 시행한 군과 NaF paste로 burnishing을 시행한 군의 복제물을 채득하고, 주사전자현미경하에서 상아세관의 변화를 관찰하여 환자의 상아질 지각과민 감소 정도와 비교하고자 함이다.

2mm이상의 치은퇴축을 보이는 23개의 전치, 견치, 소구치를 택하여, 초진시 세가지 자극(탐침에 의한 기계적 자극, 찬 공기에 의한 자극, 섭씨 30도, 10도, 4도의 물에 의한 자극)에 의한 지각과민 정도와 함께 임상수치를 기록하였다. 23개의 치아중, 3개는 비과민 치아로 대조군이었고, 나머지 20개 지각과민 치아를 임의의 두 실험군으로 나누어, 1군의 10개 치아는 2% sodium fluoride로 iontophoresis를, 2군의 10개 치아는 NaF paste로 burnishing하였다.

처치 1주후, 초진시와 마찬가지로 지각과민 정도를 기록하여 서로 비교하였다.

초진 및 처치 1주후, 대조군과 실험군의 23개 치아를 1% sodium hypochlorite로 깨끗이 세척한뒤 Provil로 인상을 채득하고 Pri-Die로 복제물을 제작하여 주사전자현미경하에서 상아세관의 변화를 관찰하였다.

비과민 치아에 비하여 지각과민 치아에서 단위면적당 상아세관의 수가 더 많고, 그 지름이 큰것을 관찰할 수 있었다.

Iontophoresis군은 처치후 단위면적당 상아세관의 수가 감소하였고, 상아세관의 지름도 작아졌다. NaF paste군은 처치후 무정형의 smear layer와 작은 크기의 결정들이 상아세관의 입구를 막아 상아세관이 부분적으로 혹은 완전히 차단된 것을 볼 수 있었다.

지각과민을 유발하는 자극에 대해 Iontophoresis군은 처치후 16.76% 개선되었고, NaF paste군은 28.41% 개선되었다. 두 군 모두 처치전에 비하여 처치후 과민 정도가 현저히( $P < 0.01$ )감소하였고, NaF paste군이 Iontophoresis군에 비하여 감소정도가 더 현저하였다( $P < 0.05$ ).

이상의 결과에서 상아질 지각과민에 대한 환자의 임상적 반응과 주사전자현미경하의 상아세관 변화사이에 상관관계가 있는 것으로 보아 복제물을 이용한 상아질 지각과민증의 진단 및 치료약제의 평가가 임상에 유용한 것으로 생각된다.

## The characterization for growth inhibition of *Bacteriodes intermedius* by *Streptococcus mutans*

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*B. intermedius* is one of the major periodontopathic microflora and the growth of the *B. intermedius* is inhibited by *S. mutans*. The purpose of this study is to clearly the characterization for growth inhibition of *B. intermedius* by *S. mutans*. The effect of pH on the growth of *B. intermedius* ACTC25611, NCTC9336, SUNYaB G8-9K-3 was investigated. The acid production of *S. mutans* OMZ65, OMZ175, JC-2 was compared under anaerobic and aerobic and under glucose and without glucose condition. The short chain acids produced by *S. mutans* were analyzed by HPLC under different culture conditions. The growth inhibition activity test was performed between 2 strains by stab method. And the effect of products of cultured *S. mutans* was tested by diffusion method. All *B. intermedius* strains grew to low culture densities at low pH value of media. *S. mutans* incubated with glucose produced more lactic acid and larger inhibitory activity than without glucose. The inhibitory zones produced by *S. mutans* under anaerobic condition were larger than that under aerobic condition. The supernatant of cultured *S. mutans* had some different effect. Growth inhibition of *B. intermedius* by *S. mutans* may be partially due to the production of lactic acid and low pH value.

## Clinical & scanning electron microscopic observations after treatment of dentine hypersensitivity in vivo

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A total 23 vital teeth were replicated in vivo prior to and one week after desensitization. Each replica was compared in scanning electron microscopy on the changes of the size and numbers of the dentinal tubules. And clinical responses of patients were also compared.

The results were as follows :

1. On the scanning electron microscopy using the replica technique, the number of open tubules per unit area was significantly higher in the hypersensitive than the non-sensitive teeth. The diameters of the tubules in the non-sensitive teeth were much smaller than the hypersensitive teeth.
2. The surfaces of iontophoresis group exhibited reduction of diameter size and decrease of numbers of dentinal tubules.

The surfaces of NaF paste group exhibited partial occlusion of the tubule orifices with a thin, amorphous smear layer and many small crystalloid substances.

3. There were significant differences between the baseline and one-week-later scores in both groups

at the  $P < 0.01$  level.

There was a significant reduction in NaF paste compared with iontophoresis group ( $P < 0.05$ ).

4. There was an interrelation between clinical responses and microscopic changes of dentinal tubules after desensitization.

## The effect of citric acid gel on retained plaque, calculus and root surface

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The purpose of this study was to observe the effect of citric acid gel on retained plaque, calculus and root surface.

Twenty-one human teeth recommended for extraction as a result of advanced periodontal diseases were used. The teeth chosen for the study displayed clinically demonstrable calculus. Twelve teeth were used in vitro and nine teeth in vivo.

After the teeth were treated with citric acid gel, citric acid solution, saline or blank gel in vitro and in vivo, they were processed for scanning electron microscopic observation.

The results were as follows :

1. Citric acid treated groups displayed little debris or residual calculus on cementum and showed the exposure of collagen fiber and enlarged dentinal tubules. Saline and blank gel treated groups displayed considerable surface debris and large number of residual calculus.
2. In proportion to the extent of the application time, the citric acid treated groups showed a tendency to reduce the amount of retained plaque and calculus, or no plaque.
3. Citric acid was slightly less effective than citric acid solution in terms of demineralization in vitro.

However, citric acid gel similarly or slightly more effective in demineralization, compared with citric acid solution in vivo.

## The effects of chlorhexidine and listerine mouthrinses on developing plaque and gingivitis

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The purpose of this study was to compare the clinical and microbiological effects of chlorhexidine and listerine mouthrinses in the experimental gingivitis model.