염산 Tetracycline으로 처리된 치근면에 대한 섬유아세포의 부착효과

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Tetracycline-HCl 처리된 치근면에 대한 섬유아세포의 부착효과를 평가하기 위해 중증치주질환으로 발치된 치아에 전체 치근면활택술을 시행한 뒤 이환된 치근면만 포함하는 총 100개의 절편을 제작하여 치근면활택술만 시행한 군과 구연산용액에 3분간 침수시킨 구연산처리군을 대조군으로 하였고 tetracycline-HCl 50mg/ml와 teracycline-HCl 100mg/ml수용액에 각각 5분간 침수시킨 두 군을 실험군으로 하였다.

모든 절편은 UV radiation으로 멸균한 뒤 사람의 섬유아세포가 든 배양액과 함께 탄산가스배양기(37℃, 5% CO_2)에서 배양한 후 12시간, 1일, 2일, 4일, 7일후에 치근면에 부착된 섬유아세포수를 chamber counting method에 의해 측정하여 다음의 결과를 얻었다.

1. 각 군간의 비교에서 TC-HCl 100mg/ml처리군이 2일후부터 치근활택군보다 세포부착이 더 증가되었고($P<0.05$), 7일후에는 다른 전체군보다 세포부착이 더 증가되어 나타났으며 ($P<0.05$), TC-HCl 50mg/ml처리군은 4일후에 치근활택군에 비해 세포부착이 증가되는 것으로 나타났다($P<0.05$).
2. 시간별 비교에서 치근활택군만 제외한 전체군에서 4일후에 그 이전에 비해 세포부착이 증진되어 나타났고 7일후에는 전체군에서 그 이전보다 더 증가된 세포부착양상을 타나냈다($P<0.05$).
3. 전반적으로 치근활택처리군보다는 화학적처리군이, 모든 화학적처리군 중에서도 TC-HCl 100 mg/ml처리군에서 더 좋은 세포부착효과를 얻을 수 있었다.

이상의 결과에서 볼때, TC-HCl처리된 치근면에 섬유아세포의 부착 및 증식이 크게 증진됨으로써 치주조직의 치유과정중 결체조직의 신부착에 크게 기여할 것으로 추정된다.

● 치근면에 도포된 Tetracycline의 유리양상에 관한 연구

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치근면에 국소도포된 tetracycline의 흡착과 유리양상을 연구하기 위해 발거한 치아에서 치근면평활술을 시행하고, 50mg/ml와 100mg/ml의 tetracycline-HCl을 5분간 국소도포한 후, 1ml 증류수내로 유리되는 tetracycline양을 12시간 간격으로 UV Spectrophotometer에서 측정하였고, 치주질환환자 2명에서 치주판막술중 50mg/ml와 100mg/ml tetracycline-HCl을 5분간 치근면에 도포한 후 각각 1, 2, 4, 8, 24, 32, 48, 56, 72, 96, 120, 144시간 간격으로 paper strip을 이용하여 치은열구액을 채취한 후 Bacillus cereus와 함께 균배양하여 inhibition diameter를 측정한후 tetracycline 유리량을 계산하여 다음과 같은 결론을 얻었다.

1. 시험관내 연구결과

   50mg/ml와 100mg/ml tetracycline-HCl 도포시 48시간후에 각각 7.32μg/ml와 6.18μg/ml가 유리되었으며, 7일후에도 각각 1.3μg/ml와 1.42μg/ml가 유리되었으나 도포수용액의 농도에 따른

1. Horizontal and/or vertical bone loss, a distance exceeding 2mm between cementoenamel junction and alveolar crest, was found in 24.8% of the accepted subjects.
2. Horizontal lesions were more prevalent than vertical lesions.
3. The most frequent location of bone loss (horizontal and vertical) was the maxillary first molars.
4. The prevalence of periodontitis was higher in boys than in girls.
5. The juvenile periodontitis type of lesion was found in 4 subjects (1.3%).
6. About 2/3 of the sujects revealed one or two lesions.

Effect of epidermal growth factor on the immune response in mice

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This study was attempted to investigate the immunomodulating effect of EGF on the antibody production of mice to sheep erythrocytes (SRBC), and on the migration ability of leukocytes, rosette-formation of immune lymphoid cells and lymphoid tissue.

EGF did not affect the development of Arthus reaction, but did influence the expression of DTH, depending on the timing of the treatment relative to antigen exposure. DTH to SRBC was remarkably inhibited if EGF was injected for 4 days before or after sensitization and was somewhat increased when EGF was treated for 8 days from $^{-4}$ to + 4 day of SRBC.

Hemagglutinin response to SRBC in compared treated with EGF before immunization was significantly decreased compared with that of counterparts. However, EGF administration after SRBC slightly increased serum antibody response. The IgG response was affected more greatly than the paired IgM response, suggesting that helper T cells might be the target of EGF induced immunoregulation rather than B cell itself in humoral immune responses.

EGF showed an enhancing effect on the migration of chicken leukocytes, suggesting that EGF-induced augmentation of migration of macrophages might be manifested by the modification of their cell membrane via their specific receptor for EGF.

EGF decreased not only number of rosette-forming cells but weight of spleens.

These results provide evidence that EGF acts on lymphoid system directly and it modulate strongly the immune responses.

In vitro attachment of human gingival fibroblast to tetracycline hydrochloride treated root surface

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This study was aimed to evaluate the effect of root conditioning with tetracycline-HCl on the fibrob-

last attachment.

Periodontally diseased teeth were extracted, root planed and cut into dentin slabs.

As control group, only root planed dentin slabs and citric acid treated dentin slabs were included and as experimental with UV radiation, human gingival fibroblasts were seeded in each culture well containing prepared dentin slabs and incubated for 1/2, 1, 2, 4, and 7days at 37℃. At each time, number of attached fibroblasts was measured by chamber counting method.

The results were as follows :

1. In 100mg/ml teracycline-HCI treated group, fibroblast attachment was enhanced compared to only root planed group after 2days' incubation and compared to other 3 group after 7days' incubation. In 50mg/ml tetracycline-HCI treated group, after 4days' incubation, fibroblast attachment was significantly enhanced compared to only root planed group.
2. Fibroblast attachment, after 7days' incubation in only root planed group and after 4days' incubation in other 3 groups, was more than before in each group.
3. As a whole, fibroblast attachment and growth was enhanced in chemically treated slabs compared to only root planed slabs : in descending order of tetracycline-HCI 100mg/ml treated group, tetracycline-HCI 50mg/ml treated group, and citric acid treated group.

This result suggests the topical application of tetracycline-HCI on root in periodontal therapy could contribute to connective tissue new attachment.

Desorption kinetics of tetracycline topically applied to root surface

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This sutdy was performed to observe the desorption pattern of tertracycline-HCI topically applied to root surface.

Periodontally diseased human teeth were extracted and root planed thoroughly. Dentin slabs were preared from roots and applied with 50mg/ml and 100mg/ml tetracycline-HCI solution for 5 minutes and immersed in 1ml of distilled water.

The aliquot of distilled water was exchanged and assayed for tetracycline by measuring the absorption peak at 276nm on UV Spectrophotometer every 12 hours.

For in vivo study, two individuals diagnosed as moderate to severe periodontitis were selected and 50mg/ml and 100mg/ml solution of tetracycline-HCI were applied topically to root surfaces during flap aurgery. Gingival fluid was sample from 10 sites per patient using paper strip at 1, 2, 4, 8, 24, 32, 48, 56, 72, 96, 120 and 144 hours.

The absorbed paper strips were placed on Mueller-Hinton agar plate containing Bacillus cereus and incubated aerobically in 37℃, 12 hours and the inhibition diameters were measured.

The results were foolows :

1. In vitro study

From dentin slabs treated with 50mg/ml and 100mg/ml tetracycline solution, concetration of tetrac-