

## ● 치주질환구 용해소체효소 : 치은 조직내의 $\beta$ -glucuronidase에 관한 연구

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치주질환을 갖고 있는 27세~62세의 남녀 38명의 치은조직을 10~25mg정도 절제하여, Hasegawa와 Cimasoni(1985)의 방법에 따라 균질화 및 원심분리하여 세포질 추출물을 얻은 다음, Dingle(1972)의 방법을 변형하여  $\beta$ -glucuronidase활성을 분광측정법으로 측정하고, 각 환자의 치주낭 깊이(Pocket depth) 및 치은염지수(gingival index)와 비교하여 다음의 결론을 얻었다.

1. 치은조직내  $\beta$ -glucuronidase의 총효소활성 및 유리효소활성치의 평균값은 각각  $6.836 \pm 0.498$ ,  $6.373 \pm 0.453$  liberated phenol-p-hthalein mg/protein mg/hr로서 매우 낮은 latency를 나타내었다(6.8%).
2. 남녀별  $\beta$ -glucuronidase활성 및 치주 임상지수는 뚜렷한 차이가 없었다.
3. PD의 정도에 따라 총효소 및 유리효소활성이 통계적으로 유의하게 증가되었으며(PD vs. 총효소, PD vs. 유리효소 :  $P < 0.01$ ), GI 정도와 효소활성도 비슷한 관계를 나타내기는 하였으나 PD의 수준에는 못미쳤다(GI vs. 총효소, GI vs. 유리효소 :  $P < 0.05$ ).
4. 각 환자의 PD와 효소활성의 상관관계는 매우 높은 편이었으나(총효소,  $r=0.652$  : 유리효소,  $r=0.647$ ), GI와 효소활성간에는 비교적 낮은 상관계수를 나타내었다(총효소,  $r=0.432$  : 유리효소,  $r=0.385$ ).

## ● 치주질환과 용해소체효소 : 치은조직내의 acid phosphatase에 관한 연구

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치주질환을 갖고 있는 27~62세의 남녀 30명의 치은조직을 10~25mg정도 절제하여 Hasegawa와 Cimasoni(1975)의 방법에 따라 균질화 및 원심분리하여 세포질 추출물을 얻은 다음, Vaes(1975)의 방법을 변형하여 acid-phosphatase활성을 분광 측정법으로 측정한 다음, 각 환자의 치주낭 깊이(pocket depth) 및 치은염지수(gingival index)와 비교하여 다음과 같은 결론을 얻었다.

1. 전체환자의 치은조직내 acid phosphatase의 총효소 활성치 및 유리효소 활성치의 평균값은  $29.12 \pm 1.34$ ,  $19.80 \pm 0.94$  liberated phenol mg/protein mg/hr로서 약68%의 높은 F/T ratio를 나타내었다.
2. 남녀별 치주임상지수 및 acid phosphatase의 활성도 모두 뚜렷한 차이가 없었다.
3. PD 및 GI의 정도에 따라 총효소 및 유리효소 활성이 점차적으로 증진되었으며 가장 높은 grade에서는 모두 통계적으로 유의한 값의 변화를 나타내었고(PD,  $p < 0.001$  : GI,  $p < 0.05$ ), 특히 총효소활성의 증가가 더욱 두드러져 F/T ratio는 오히려 감소되는 경향을 나타내었다.
4. 각 환자의 치주 임상지수와 효소활성의 상관관계는 총효소 활성이 유리효소 활성과의 경우보다 PD( $r=0.643$ ), GI( $r=0.681$ ) 모두 높은 상관계수를 나타내었으며, 유리효소 활성에서는 GI( $r=0.589$ ), PD( $r=0.428$ )와의 경우보다 높은 상관계수를 나타내었다.

## Lysosomal acid hydrolases periodontal disease : A study on $\beta$ -glucuronidase in human gingiva

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Given the cyclical, episodic pattern of periodontal disease activity, it seems logical to suggest that a meaningful approach to periodontal diagnosis would involve the measures of biochemical status of the periodontal tissues.  $\beta$ -Glucuronidase, for such a marker associated with tissue breakdown, was analyzed from gingival tissue of 38 periodontal patients aged 27~62 years.

Gingival tissues were removed from first molar area during periodontal surgery which was homogenized in 0.25M sucrose solution and then centrifuged. By the modification of the method of Dingle(1972),  $\beta$ -glucuronidase was assayed spectrophotometrically from supernatant enzyme preparation, and compared with clinical parameters such as pocket depth or gingival index.

Mean value of total enzyme activity(latent fraction + active fraction) was  $6.836 \pm 0.498$ , and free enzyme activity(active fraction only)  $6.373 \pm 0.453$  liberated phenolphthalein mg/protein mg/hr : that means the extremely low latency(6.8%) of  $\beta$ -glucuronidase in periodontal subject.

As the degree of pocket depth or gingival index increased, also free or total enzyme activities were increased accordingly, and above salient feature was especially significant in the relation between pocket depth and enzyme activity. The correlation coefficient between  $\beta$ -glucuronidase activity and pocket depth was hidden than respective value for gingival index : these results suggest that clinical assessment of inflammation by gingival index may be related to the size of inflammatory infiltrate with less degree of sensitivity.

## Lysosomal acid hydrolases and periodontal disease : A study on acid phosphatase in human gingiva

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We investigated 30 subjects showing varying degrees of periodontal disease who were aged 27~62 years. Gingival tissue was removed from molar area during the elective periodontal surgery, which was immediately chilled in ice-cold 0.25M sucrose and then homogenized in same solution. The homogenate was centrifuged at 600xg for 10 min at  $4^{\circ}\text{C}$  and the supernatant removed as the enzyme preparation for study. Acid phosphatase activity was assayed spectro-photometrically by the modification of the method of Vaes(1965) and compared with clinical parameters such as pocket depth and gingival index.

Mean value of total enzyme activity(latent fraction + active fraction) was  $29.12 \pm 1.34$ , and free enzyme activity(active fraction only)  $19.80 \pm 0.94$  liberated phenol mg/protein mg/hr : that means the very low latency(32%) of acid phosphatase in periodontitis subject.

According as the degree of pocket depth or gingival index increased, free or total enzyme activities were also increased significantly, which results suggest interdependence between activity of acid phosphatase and the course of pathological process.

Correlations between acid phosphatase activity and clinical parameters were high enough for total enzyme (PD,  $r=0.643$  : CI,  $r=0.681$ ), and to a lesser extent for free enzyme (PD,  $r=0.428$  : GI,  $r=0.589$ ), it may be suggested, therefore, that severity of periodontitis are more dependent on the amount of lysosomal enzyme synthesized from the gingival tissue than the amount of enzyme released.

## The effect on time and temperature on the dimensional change of periodontal dressings

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This experiment was designed to investigate the effects of time and temperature on the dimensional change of 10 kinds of periodontal dressings for accurate use in clinic.

To find out the effect of time, the length between the established points on the dressings were measured after mixing, and the specimens were sunked into the water bath of 37°C and the measurements were continued with the designed time-table.

The dimensional changes of dressings with temperature were measured as follows : After 1 hour at 37°C, each specimen was sunked into the water bath of 3°C and 60°C and then the changes were measured and compared at the designed time interval.

The results were as follows :

1. With time at 37°C, Zinc oxide-Eugenol paste showed the largest expansion, and Wondr-Pak the greatest contraction.
2. With time at 37°C, total dimensional change involving expansion and contraction was largest at the specimens of Zinc oxide-Eugenol and following Wondr-Pak, K. P. pack and Peripac in order.
3. Hard & Fast type of Coe-Pak showed the least change.
4. With the change of temperature to 60°C, Zinc oxide-Eugenol paste showed the greatest expansion and Wondr-Pak showed the largest contraction.
5. With the change of temperature to 60°C, Regular type of Coe-Pak showed the least change.
6. When Zinc oxide-Eugenol paste and Peripac which showed expansion at 37°C was exposed to the temperature of 3°C the expansion was reduced greatly and the others showed contraction for 10 minutes and remained stable at that point.