

● 메트로니다졸 국소투여가 치주농양시 치은연하 치태 세균 분포 및 염증정도에 미치는 영향에 관한 연구

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서울대학교병원 치주과에 내원한 18명의 치주농양 환자중, 치주과적 진단명으로 성인성 치주염 11명, 급성 진행성 치주염 4명, 국소적 유년성 치주염 환자 3명을 대상으로 Acrylic resin strip을 이용한 메트로니다졸 국소투여를 실시하였다. 메트로니다졸이 생체외에서 유리되는 양상은 분광 측정기로 측정하였고, 1주일간의 메트로니다졸 국소 투여가 가져오는 치은연하 치태 세균분포의 변화 및 임상효과를 조사한 바 다음과 같은 결과를 얻을 수 있었다.

1. 메트로니다졸이 생체외에서 유리되는 양상은, 1~2일 사이에 대부분의 양이 유리되나 실험기간인 7일까지도 지속적으로 유효한 양이 유리되었다.
2. 메트로니다졸의 국소투여는 전신적 투여시 나타날 수 있는 부작용 및 독작용을 거의 나타내지 않았다.
3. 급성 통증 및 배농과 같은 급성증상이 현저히 소실되었고, 치주질환의 심도를 표시하는 지표들이 크게 개선되었다.
4. 메트로니다졸 국소 투여가 치은 연상치태지수에는 별다른 영향을 미치지 못하였다.
5. 메트로니다졸 국소투여가 치은연하 치태세균의 분포를 현저히 변화시키고, 비운동성 미생물의 백분율은 비교적 건강한 부위 이하의 수준으로 감소되었다.

● Prostaglandin E 투여가 백서 치은 섬유아세포에 미치는 영향에 대한 실험적 연구

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저자는 체중 200gm내외의 웅성 백서 65마리를 각각 대조군 15마리, PG군 25마리, Ligature군 25마리씩 3군으로 나누어, 대조군에는 0.1ml의 생리식염수를, PG군에서는 0.1ml의 생리식염수에 녹인 2.5µg의 prostaglandin E을 상악 좌측 제1대구치 부위에 1일 1회씩 1일, 3일, 5일, 10일, 20일간 국소적으로 주사하고, Ligature군에는 역시 상악 좌측 제1대구치 부위에 Ligature를 1일, 3일, 5일, 10일, 20일간 위치시킨 후, 상악골을 적출하여 10% 중성 Formalin으로 고정하고, 5% Formic acid로 탈회한 후, 7µm 두께로 근원심 절편을 제작하며 Hematoxylin과 Eosin염색, Gomori's trichrome염색을 하여 치조골 상방의 교원섬유 집단을 광학현미경으로 관찰하여 다음과 같은 결론을 얻었다.

1. PG군은 대조군에 비해 투여기간의 증가에 따라 교원섬유는 그양이 점진적으로 감소되고 부종에 의해 분리되며, 파상의 형태를 보였고, 연속성의 소실이 심해졌으며, 혈관 주위의 교원섬유의 뚜렷한 소실을 볼 수 있었다.
2. Ligature군은 대조군, PG군에 비해 1일째부터 심한 교원섬유의 파괴를 나타내었고 실험기간의 경과에 따라 어느 정도 파괴된 섬유가 재생되는 것을 볼 수 있었다.
3. 대조군과 PG군 사이에는 섬유아세포의 수에 있어 별 차이가 없었으나 반면 Ligature군에서는

artificially onto the upper right third premolars to create the traumatic occlusion.

After 3, 7, 15, 30 experimental days, the specimens were stained with Hematoxylin Eosin and Trichrome, examined under light microscope. Also all specimens were observed under electron microscope.

The results of this study were as follows :

1. In 3day group, mitochondria of endothelial cell and fibroblast were broken.
2. In 7day group, dilatation of rough endoplasmic reticulum in fibroblast and looseness of basal lamina surrounding capillary were observed.
3. In 15day group, dilatation of blood vessel, severe destruction of RBC, flatening of endothelial cell were observed. In outside of lumen, RBC was also observed.
4. In 30day group, dilatation of blood vessel was remaining. But collagen fibers and fibroblasts were observed nearly similar to control group. Remnants of broken RBC were observed.
5. In all experimental groups, the band of collagen fiber was remaining and changes of collagen fibers was not observed.

The effect of metronidazole local delivery on the subgingival plaque bacterial morphotypes and clinical parameters in periodontal abscess

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The present investigation was performed to assess the effect of metronidazole, locally administered via acrylic resin strips, on microflora of periodontal pockets in humans and on various clinical parameters describing periodontitis and gingival inflammation. Eighteen periodontally abscessed patients, of whom 11 were diagnosed periodontally as adult periodontitis, 4 as rapidly progressive periodontitis, 3 as local juvenile periodontitis, were used in the study. The 7day in vitro release kinetics of metronidazole from acrylic resin was analysed by using the UV/Visible light spectrophotometer at 350nm. The clinical parameters and subgingival bacterial morphotypes were examined before and after 1 week of local metronidazole administration. The bacteria were examined in a dark-field microscope and categorized into the following groups : spirochetes, motile microorganisms, nonmotile microorganisms. The percentage distribution of the various forms was calculated. The pus discharge index was specifically defined to class the periodontal abscesses according to the pus discharge amount and size. The discomfort and side effects of metronidazole after insertion of acrylic resin strips into periodontal pockets were also examined.

The experiments showed that :

1. The in vitro release of metronidazole into distilled water was sustained for 7 experimental days.
2. The toxic and side effects of metronidazole were nearly observed when locally administering.
3. Such acute symptoms as pain and pus discharge were markedly diminished, and the clinical indexes describing periodontal disease severity were markedly improved after 1 week of local administration of metronidazole.

4. Plaque index was not influenced by the local administration of metronidazole.
5. The percentage of motile microorganisms and spirochetes was significantly reduced, and nonmotile microorganisms were increased above the level of relatively healthy sites after local delivery of metronidazole.

An experimental study on the effects of prostaglandin E on gingival fibroblasts of rat

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The purpose of this study was to observe the effects of prostaglandins on gingival fibroblasts and collagen fibers of rat.

The experiment was performed in 65 male rats.

15 rats were used as control and 25 rats as PG group and remaining 25 rats as Ligature group.

In control and PG groups, 0.1ml of normal saline and 0.1ml of normal saline with 2.5 μ g of PG E1 were injected to the mucobuccal fold of left upper first molar respectively.

In Ligature group, 4-0 black silks were placed between the left upper first and second molars.

After 1, 3, 5, 10, 20 experimental days, rats were sacrificed and left maxillary arch with teeth was removed and fixed with 10% neutral formalin and decalcified with 5% formic acid and embedded in paraffin and sectioned mesiodistally at 7 μ m intervals and stained with Hematoxylin and Eosin, Gomori's Trichrome and examine the supracrestal area with light microscope.

The following results were obtained :

1. In the PG group, collagen fibers were decreased in amounts and separated with edema and had wavy course, disruption and loss of perivascular collagen with increasing experimental days as compared with the control group.
2. In ligature group, there was greater loss of collagen fibers than PG and Control groups from the first experimental day, but showed some regeneration of collagen fibers with increasing experimental days.
3. The amounts of fibroblasts were almost equally abundant in control and PG groups, but in Ligature group there was marked reduction in amounts of fibroblasts.
4. In Ligature group, there was an apical migration of epithelium along the root surface but in control and PG groups not.