Efficacy of transforming growth factor- ɓ on development of ameloblasts and odontoblasts in tooth germ of young albino rat

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Abstract

Transforming growth factors were known as secreted factors that induced the growth of non-transformed cells. The study investigating the growth response of ameloblasts and odontoblasts to TGF-ɓ. Four adult male and 12 adult female albino rats were used in this study. Mating took place between them. Female rats were divided into two groups each group consist of 6 rats: group I (control) rats were injected with 0.1 m1 phosphate buffer saline every two days from the first day till the labor time. Their offspring were considered the control group. Group II were injected intramuscular with TGF-ɓ 40 ng dissolved in PBS every two days during the pregnancy period. Thirty off-springs rats of both groups were killed after 4 days of birth and the lower jaw of each was dissected. The sections were stained by hematoxyline and eosin and immuno for histological study. All the data will statistically be analyzed. Histological examination of tissue sections, showed differences in ameloblast and odontoblastic layers. Enamel matrix, dentin and predentin layers showed variable thickness when compared to the control group. While Immunohistochemical examination of both ameloblasts and odontoblasts of group II showed negative nuclear and positive cytoplasmic reaction of MMP-9 in all stained tissue sections. It was concluded that: within the utilized doses and experiment duration, TGF-ɓ was associated with noticeable histological changes in ameloblasts and odontoblasts. TGF-ɓ has a relatively mild stimulatory effect on the organic matrix secretory potential of odontoblasts was observed in dentin.
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