

论文

Ad-BMP-2基因转移诱导兔下颌骨骨膜成骨的实验研究

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摘要:

目的 探讨腺病毒介导的骨形态发生蛋白2(Ad-BMP-2)局部基因转移对兔下颌升支外侧骨膜处异位成骨的诱导作用。方法 选用18只成年新西兰大白兔作为实验动物,在一侧下颌升支外侧骨膜处注射0.2mL Ad-BMP-2(共含病毒滴度2×10⁹pfu)为实验组,对侧注射等量的PBS为对照组,术后2、5、10周分别处死6只动物,行大体观察、影像学和组织学检查,观察新骨形成的时间和空间变化特点。结果 Ad-BMP-2局部注射引起一定程度的炎症反应,随时间延长逐渐减弱;第2周,注射区域的细胞开始增生和分化,有较多成纤维细胞样细胞聚集;第5周,类骨基质开始形成,部分区域开始矿化;第10周,有编织骨和髓腔样结构形成。骨化程度在不同个体间存在差异。对照组始终没有新骨形成。结论 一定浓度的Ad-BMP-2可以诱导下颌升支外侧骨膜处的异位骨形成,增加皮质骨的厚度。

关键词: 基因治疗; 骨形态发生蛋白2; 骨膜; 骨形成

Effect of fetal rat fibroblasts on wound healing of deep second degree scalds treated with dermabrasion

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Abstract:

Objective To investigate the effect of Ad-BMP-2 on ectopic bone formation around the mandibular periosteum in rabbits. Methods Eighteen New Zealand White rabbits were used in the study. About 2×10⁹pfu of Ad-BMP-2 vectors (0.2milliliter lysate) were injected into the site around the lateral periosteum of the mandible on the right side of each rabbit to serve as the experimental group, and the left side had the same volume of phosphate buffered saline(PBS) injected into the periosteum to serve as the control group. Six animals were sacrificed at the time points of 2,5 and 10 weeks post-operation. All the samples were examined by X-ray and histological chemiscal observation to investigate the temporal and spatial characteristics of new bone formation. Results In vivo local delivery of Ad-BMP-2 resulted in a certain degree of immunologic rejection, which was decreased as time went on. At week 2,many native cells around the injection site began to proliferate and differentiate towards the cell line of osteoblast; at week 5, osteoid tissue was found and some new tissues began to be mineralized; at week 10, immature woven bone and marrow cavity-like structures were formed. There were some differences between animals in the ossification degree of new forming tissue. There was no osteoid tissue formed in the control groups. Conclusion Ad-BMP-2 could induce ectopic bone formation around the mandibular periosteum and could augment the thickness of cortex bone.

Keywords: Gene therapy; Bone morphogenetic protein 2(BMP-2); Periosteum; Osteogenesis

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