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Title:
Effect of nucleo CMP forte and platelet rich plasma on the regeneration of sciatic nerve in dogs

Abstract:

The objectives of this study were to evaluate the efficacy of each Cytidine Monophosphate and Platelet Rich Plasma on the regeneration of sciatic nerve injury of dogs. Twelve healthy adult dogs were used to complete this study. They were randomly divided into three equal groups:- control group, Platelet Rich Plasma group and Cytidine Monophosphate groups. The sciatic nerve axotomy was done on the right hind limb at the middle femoral bone and then the nerve coaptated immediately by nylon suture 0-5 with end-to-end anastomosis, using simple interrupted suture, and then the activated platelet rich plasma is injected immediately at the site of coaptated nerve at subepineural site but in Cytidine monophosphate group, the dogs are treated with Cytidine monophosphate 5 mg/day intramuscular for 30 day post operation. The clinical examination of animals show occurrence (onset of gait, knuckling, swelling and pain at the operated leg) that were evaluated from the start until the end of the study (sixteen week). Clinically, the cytidine group show faster improvement compared with Platelet Rich Plasma and control groups.Macroscopic examination is done for evaluating the presence of nerve stump coaptation, adhesion, thickness and neuroma. A good coaptation was observed in cytidine and platelet rich plasma groups compared with control. While the adhesion appeared in variable degrees in control and platelet rich plasma group, otherwise, it was appeared in one animal in cytidine group. Moreover, no thickness or neuroma is present in all groups. The Electrophysiological examination (conductive velocity) was carried out by AD- INSTRUMENT after isolation of the sciatic nerve on 16^{th} weeks postoperative, the results showed significant differences at ($p \leq 0.05$) in the same group between right (operated) and left sciatic nerve. Furthermore, significant differences

between groups at ($p<0.05$) are the best conductivity in Cytidine monophosphate group compared with other groups. The histopathological examination of proximal, middle, and distal segments of sciatic nerve sections (three parts along each one 1cm) are isolated, and used to evaluate the sciatic nerve regeneration. The neurohistopathological results that showed increase proliferation of Schwann cells and orientation of regenerative nerve fibers are observed most clearly and improved in Cytidine monophosphate group compared with platelet rich plasma group.