Effect of carnitine on cutaneous wound healing in immunosuppressed rats.


Department of General Surgery, Kirikkale University Medical School, Suleyman Demirel Research and Training Hospital, Kirikkale, Turkey.

BACKGROUND: The wound is ischemic in nature. Chronic steroid administration impairs wound healing by changing enzymes in the glycolytic pathway. Carnitine supplementation may help to restore the energy deficiency caused by chronic steroid administration in the wound. The aim of this study was to evaluate the effect of carnitine on impaired wound healing.

METHODS: The study was conducted in three groups. Surgical intervention was a 4 cm long midline skin incision at the back. In Group A, eight rats received methylprednisolone for 7 d prior to surgical intervention, and it was continued until the end of the experiment. In Group B, 12 rats received methylprednisolone for 7 d prior to surgical intervention. After surgery, methylprednisolone injection was continued and carnitine was supplemented until the end of the experiment. In Group C, eight rats received no medication. The wound of half of the animals in each group was harvested on the seventh day after surgical intervention and the remaining on the 14th d. Tensile strength and hydroxyproline content were measured in all groups.

RESULTS: There was no significant difference in parameters in any of the groups on day seven. On day 14, all parameters were statistically different between methylprednisolone and control groups (P < 0.05). Values for tensile strength were higher in the methylprednisolone/carnitine group compared with methylprednisolone group (P < 0.05). Carnitine administration had also increased hydroxyproline levels in the methylprednisolone/carnitine group compared with the control group (P < 0.05).

CONCLUSIONS: Carnitine is shown to increase tensile strength of the wound when supplemented to immunosuppressed rats in which wound healing is impaired by methylprednisolone.

PMID: 19505698