

Dietary L-arginine and cutaneous wound healing

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SUMMARY

Skin wound healing has been the subject of extensive studies and various drugs have been used in an attempt to improve wound healing. There are conflicting data regarding the effects of L-arginine, the substrate of nitric oxide, on wound healing. We examined the 1-week rate of cutaneous wound healing and collagen deposition in three groups of rats who received a (1) L-arginine (2% in drinking water)-supplemented diet from three days before until the seventh day following injury (Group 1), (2) L-arginine-supplemented diet for three days before injury (Group 2), and (3) a standard diet without L-arginine supplementation (Group 3). The wound length and width were measured each day and then the open wound area and cumulative percentage of open wound area reduction were calculated. Wound biopsy samples were examined with Trichrome-Masson stain in a subgroup of animals. Results showed that Group 1 rats had a significantly lower cumulative percentage of open wound area reduction on day 7 compared to other two groups (Mann-Whitney *U* test, $P < 0.05$). Relatively higher degrees of wound collagen deposit (day 7) were noted in groups 2 and 3. It may be concluded that L-arginine (2% in water) administered three days before until the seventh day following skin wound induction may diminish the rate of skin wound healing and collagen deposition.

INTRODUCTION

Cutaneous wound healing can be affected by several local and systemic factors, which alter collagen synthesis, neovascularization and epithelialization (Chiquetti Júnior et al., 2007). The most significant histological changes occur during