

Evaluation of secondary intention wound healing process after botulinum toxin-A injection in rat

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Abstract

Today, the increasing use of beauty products such as Botox has raised concerns about their secondary impact on the body. The healing of wounds created at the site of these injections and paralyzed areas in case of this medicine has been considered by many researchers and physicians. The aim of this study was to investigate the process of wound healing in an area that previously treated with Botox. This study was performed on 30 rats weighing 200 to 250 g. 10 days before surgery Animals in Botox group, was injected 5 units of Botox and in the control group, saline serum with a volume of 1 ml subcutaneously in an area of 20 × 20 mm. After 10 days, the animals were ready for surgery. The surgery was performed by removing the injected area of the skin in full thickness and then the animals were kept in separate cages. Each of the Botox and control groups was divided into three equal subgroups (n = 5). Each of the subgroups was examined macroscopically and microscopically on days 7, 14 and 21, respectively, after euthanasia. In macroscopic evaluation of wound size and wound closure percentage, no significant difference was observed between Botox and control groups; However at all animals the percentage of wound closure in the Botox group was higher than the control group. In microscopic evaluation of skin sections in the day of 7 after wounding, in the Botox group, a large number of fibroblasts and blood capillaries that contained abundant erythrocytes were seen. On the day of 14 in the Botox group, the fleshy bud tissue showed faster maturation and the fleshy bud tissue contained fewer fibroblasts and more collagen fibers were seen. In the Day of 21 In all mice of Botox group, most of the wounds were completely covered by proliferated keratinocytes and also in the dermis, compared to the control group, connective tissue with pink fibers and a small number of fibroblasts and blood capillaries were visible. Overall, this study showed that wound healing in areas where previously injected by Botox is not problematic but also performed with better speed and quality.

Key words: Botulinum toxin type A, Botox, rat, wound healing

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