The Efficiency in Wound Healing of Chitin Derivatives: Animal Study

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Abstract

Background: Acrylic grafted chitin (chitin-PAA) was reacted with different amount of glycidyltrimethylammonium chloride (GTMAC). The effects of GTMAC contents of the resulting products on water sorption and wound healing ability were investigated. The products decreased water sorption as the GTMAC content increased.
Objectives: To compare the efficiency of the chitin derivatives and commercially hydrogel for wound healing in Wistar rats.
Methods: The healing effectiveness was evaluated by applying the products in the gel form at 5% aq.(w/v) on the full-thickness dorsal skin incisions of Wistar rats and measuring the wound areas at postoperative days of 1, 3, 5, 7, 9, 12, 15 and 18 using image analyzer. The data were then statistically analyzed using one-way ANOVA and Scheffe test. The commercially hydrogel dressing contained a modified carboxymethylcellulose (CMC) was also used for a comparative study.
Results: The results showed a significant reduction in the wound area covered with the chitin derivatives in day 9 in comparison with day 12 for those covered with the commercial CMC.
Conclusions: As a result, it was demonstrated that although unaffectedly by GTMAC content, a significant acceleration in wound healing of the chitin derivatives.

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