



WOUND HEALING EFFICACY OF GG(OCHHCl) GEL COMPOUND COMPARED WITH INTRASITE™ GEL IN WISTAR RATS

Kobutree P¹, Pulsuksombati D², Pilakasiri K¹, Janvikul W³ and Sangjun N²

¹Faculty of Medicine Siriraj Hospital, Mahidol University, ²Armed Forces Research Institute of Medical Sciences, ³National Metal and Materials Technology Center

Abstract

Background: GG(OCHHCL) gel consisted of oligochitosan salts (OCHHCL) and crosslinked guar gum (GG). Various studies indicated that chitin and chitosan accelerated wound healing. However, in most studies the chitin and chitosan were in form of filaments, powder, granules and sponges. Hence, the moist healing environment and accelerating effect of chitin and chitosan could not be exploited sufficiently due to the relatively low interaction between the wound and these healing agents. In contrast, the application of chitosan hydrogels might effectively interact with and protect the wound, providing a good moist healing environment.

Objectives: To determine the wound healing efficiency of GG (OCHHCL) gel compound compared with that of the commercial product, Intrasite™ gel.

Methods: A total of 12 female Wistar rats were anesthetized. Two full thickness skin wounds (1 x 1 cm²) were made on the dorsum of each animal. One individual wound was dressed with GG (OCHHCl) gel and the other with Intrasite™ gel. The groups of four animals were sacrificed on day 2, 11 and 17 after wounding. The wound were photographed for calculating by the image analysis program. The wound tissues were removed for histological examination.

Results: The results showed that GG (OCHHCl) gel promoted wound healing faster than the Intrasite™ gel by decreasing the wound area rapidly, decreasing the inflammatory cells, stimulating the re-epithelialization and advancing granulation tissue. Also, the number of PCNA-positive cell GG (OCHHCl) gel dressing groups was significantly greater than that of Intrasite™ gel on all experimental days. In addition, a larger amount of material residue still remained in wound tissue of Intrasite™ gel group than those of GG (OCHHCl) gel.

Conclusions: The GG (OCHHCl) gel shows a good healing efficiency in open wounds by inducing re-epithelialization, granulation tissue formation and decreasing the inflammation as well as being the good biodegradability with no dressing residue found.

33rd Annual conference of the Anatomy Association of Thailand 2010, 28-30 April 2010, Poster # 22, Poster presentation