The Effect of SACCHACHITIN on keratinocyte proliferation and theexpressions of type I collagen and tissue-transglutaminase during skin wound healing

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摘要

Abstract

SACCHACHITIN is a skin wound-healing membrane made of residual fruiting body of Ganoderma tsugae. Its effect on proliferating cell nuclear antigen (PCNA) expression in actively proliferating cells, type I collagen expression and tissue remodeling in the healing tissue, and the association of tissue-transglutaminase (t-TGase) with wound healing were investigated by immunohistochemical staining. The results demonstrated that PCNA expressed in keratinocytes since day 1 in the SACCHACHITIN group and persisted during entire healing process. In contrast, it was barely detectable on day 3 in the control group. At keratinocyte layer, the SACCHACHITIN group exhibited more type I collagen than did the control group since day 1. At scar tissue, type I collagen was positively stained in the SACCHACHITIN group since day 7 but not in the control group till day 12. Furthermore, t-TGase was strongly expressed on the inner wall of angiogenic vessels on day 5 of the control group but not on that of the SACCHACHITIN group until day 10. The earlier expressions of PCNA and type I collagen in the keratinocyte layer may lead to accelerated skin wound healing. In addition, the later expression of t-TGase, an indicator of apoptosis, on the inner wall of angiogenic capillaries in the SACCHACHITIN group may indicate a longer period of blood supply to the wound area, thus facilitating wound healing. These observed phenomena might underline the beneficial effects of SACCHACHITIN membrane on rapid wound healing.