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CARDIOTONIC STEROIDS AND WOUND HEALING

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Statement of the Problem: Chronic wound healing has been a clinical challenge. There is an urgent need to develop novel wound healing therapeutics. Cardiotonic steroids (CTS) have been used for the treatment of cardiac diseases and their mechanisms of action are associated with Na/K-ATPase. It was reported that the binding of CTS with the Na/K-ATPase resulted in increased collagen synthesis by dermal fibroblasts. The objective of this study was to determine the wound healing effect of a model cardiotonic steroid in a wound model.

Methodology: Full-thickness wounds were created in rats by a biopsy punch. The vehicle alone or a testing CTS solution was applied to the wounds.

Findings: Increased collagen synthesis by dermal fibroblasts after exposure to the CTS was observed. The wound closure rate was significantly increased following the treatment with the CTS.

Conclusion & Significance: The CTS primarily elicited a wound healing effect in the proliferation phase and might be a potential wound healing therapeutics.

Biography

Jinsong Hao is currently an associate professor in the School of Pharmacy at Marshall University. She obtained her Bachelor of Engineering degree in Pharmaceutics and Ph.D. in Pharmaceutics from Shenyang Pharmaceutical University, Liaoning Province, PR China. Upon her graduation, she started her academic career at the same university as an assistant professor and associate professor. Prior to her joining the Marshall University in 2013, she worked at the National University of Singapore, Nova Southeastern University, and University of Cincinnati. Hao's research has been in the area of drug formulation and delivery, with experience in transdermal and topical formulations; drug delivery to the nail, eye, and inner ear; siRNA delivery; and pharmacokinetic study. She has over 50 publications in peer-reviewed journals and published several book chapters.

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