The Effect of Lithospermum officinale, Silver Sulfadiazine and Alpha Ointments in Healing of Burn Wound Injuries in Rat

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Abstract

BACKGROUND

Burn is the most devastating condition in emergency medicine leading to chronic disabilities. This study aimed to compare the effect of *Lithospermum officinale*, silver sulfadiazine and alpha ointments on healing of burn wounds in rat.

METHODS

Ninety-five rats were divided into \(^\ast\) groups. Group \(^1\) just underwent burn injury, and groups \(^2\)–\(^5\) received alpha ointment, silver sulfadiazine (SSD), gel base and *L. officinale* extract, respectively. A hot plate was used for induction of a standard \(^3\)rd degree burn wound. Burn wounds were macroscopically and microscopically evaluated on days \(^7\)th, \(^14\)th and \(^21\)st after burn induction.

RESULTS

A decrease in the number of inflammatory cells was noted when *L. officinale* and SSD were applied while the most inflammatory response was seen after administration of alpha ointment. The number of macrophages alone decreased after burn injury, while the frequency was the most when *L. officinale* and alpha ointment were applied. Re-epithelialization, angiogenesis and formation of granulation tissue were the best in relation to *L. officinale* and alpha ointment while, the worst results belonged to burn injury group and SSD regarding granulation tissue formation.
Considering histological assessment, the best results were observed for scoring of inflammation, re-epithelialization, angiogenesis, formation of granulation tissue and number of macrophage when *L. officinale* and alpha ointment were used after burn injury.

**CONCLUSION**

It can be concluded that topical application of *L. officinale* as a non-toxic, inexpensive and easy to produce herbal can lead to a rapid epithelialization and wound healing and these findings can be added to the literature on burn wound healing.

**Key Words:** Burn, *Lithospermum officinale*, Silver sulfadiazine, Alpha ointment, Wound healing, Rat