The Libyan International Medical University

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R0le 0f Vitamin C In The Wound Healing

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ABSTRACT

Healing is a complex process that involves cellular and biochemical events. Several medicines have been used in order to shorten healing time and avoid aesthetic damage .[2]

Vitamin C, solvent in water, is necessary to synthesis and to keep collagen, and also is an intercellular surrounding material of body tissues, blood vessels, cartilages, bones, teeth, skins, and tendons.[3] It is able to improve the protective mechanism of immune system, and wounds.[3] Also, it is necessary to rehabilitate wounds and resistance against infection.[3]

This study makes an attempt to define the effect of topical vitamin C on improving wound healing and skin repair.

Introduction

The skin is the most frequently injured part of the body. When it is wounded, the connective tissue is exposed and a series of local cellular and biochemical events are triggered to restore tissue integrity.(3)

This sequence of events is called cicatrization , involves inflammation, proliferation and maturation.(3)

Vitamin C (ascorbic acid) , solvent in water usually found in human skin, but it is rapidly lost in inflammatory processes. (1)

This vitamin can enhance the protective mechanism of the immune system to accelerate the healing process and protects the skin against ultraviolet rays, free radicals , damages and besides its anti-inflammatory effect; it is also a major agent in depigmentation of skin. (3)

Topical vitamin C reduces inflammatory responses In addition, The main function of vitamin C it stimulates collagen genes to synthesize collagen in order to heal the wounds. (3)

The main mechanisms of action and clinical applications of topical vitamin C on the skin, including its antioxidative and antiagingeffects . (1)

The aim of this study to evaluate the effect of vitamin C (ascorbic acid) on the healing process of skin wounds

Materials and Methods

In this clinical trial, 30 patients with second-degree burns in two or more organs, admitted in the burn ward of was chosen. (3)

According to the multiple factors involved in the restoration or wound infection, two research groups, were choose parallel, so that the routine use of ointments (sulfadiazine) and the Vitamin C along with silver sulfadiazine will be done on the same patient, but in the two separate parts of body. The depth of each areas compared were also quite similar. Wound at every step was observed and reviewed by a subspecialty of plastic surgery. (3)

After debridement and washing with water and normal saline solution, the limb or a section of the burned wound dried with sterile gauze. Then silver sulfadiazine ointment 1% with a thickness of 1.5 mm was laid by sterile gloves. (3)

On the other limb or another part of the body that was under study, after washing and drying like the previous step, Vitamin C 10% solution was applied on the surface of the wound using a sterile swab to a maximum area of 225 square centimeters. Then silver sulfadiazine 1% ointment with sterile gloves and a thickness of 1.5 mm was used . [3]

In this study wound healing was assessed on days 1, 3, 7 and 14 after burning. The wounds were accurately evaluated by a specialist after opening the dressings for replacing a new dressing . [3]

He checklists were completed and improvement of the two organs were compared with each other. [3]

Result

This research was conducted on 30 patients including 18 men (60%) and 12 women (40%). [3]

The results was showed a statistically significant difference between the two types of treatments, in the two groups, in terms of wound-healing rate and topical vitamin C had a significant impact on wound healing. [3]

also the different of days or times has different effects on wound-healing process. [3]

Group		**Intervention**		**Control**	
Statistical Indicators		**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
Wound scores	First day	34/10	1/34	34/06	1/31
	Third day	35/50	4/73	35/73	4/73
	Seventh day	25/10	3/89	28/06	4/60
	Fourteenth day	18/63	3/14	22/10	4/46
Effects of time		F=525/156	df=2/397	P<0/001	
Interactive effect of dressing and time		F=8/649	df=2/397	P<0/001	
Dressing effect		F=4/106	df=1	P=0/047	

Discussion

Based on the results, there was a significant difference between the two groups, in terms of wound healing rates. Time had a statistically significant effect on the mean total scores of wound and topical administrations of vitamin C solution had a higher impact on wound-healing process . [3]

Abbaspour and Khaksari conducted a study entitled “the effects of topical application of Kiwifruit on the healing process of burn wounds in rats”. They observed the Kiwifruit removed necrotic tissues faster than Elase ointment and wound epithelialization and healing was facilitated so the observed are consistent with the present study. [3]

Woessner and Gould, in their study entitled “using topical vitamin C for the treatment of bedsores and chronic wounds” found that vitamin C solution can create fresh and abundant granulation tissues in bedsores . Both this study and our study have shown that vitamin C can improve the granulation tissues. [3]

Conclusion

The findings showed that topical vitamin C solution has positive effects on the volume of necrotic tissue, epithelization and granulation tissues.

Therefore, the research hypothesis is confirmed, the research hypothesis is confirmed, and it can be argued that topical vitamin C is effective in accelerating the wound-healing process.

References

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