

Effect of Honey in Wound Repair in Patients Who Underwent Laparotomy

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Citation

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Abstract

Honey was already used a drug 5000 years ago. For centuries, honey has had a valuable state in medicine and it has been used for decreasing the risk of infection and improving ulcer healing. In recent years, there was a renaissance with a return to using honey as a drug in treatment of wounds, burns and skin lesions. In this clinical trial, we have investigated the effect of honey on the speed of granulation tissue formation in open wounds resulting from laparotomy. Methods The control group included 22 patients and the exam group 11 patients. In the control group, the wound was washed 3 times a day with normal saline. In the exam group, the wound was washed with normal saline 3 times a day and then covered with a thin layer of honey. During the first five days after open laparotomy, a tissue sample was taken from the wound and then investigated from the viewpoint of granulation tissue formation time. Results Mean time of granulation tissue formation start was 4/27 days (SD 0/7) in the control group and 1/18 days (SD 0/4) in the exam group. The results showed that the mean times of granulation tissue formation in both groups were significantly different. Discussion: According to the results achieved in this study, the use of honey causes to bring forward granulation tissue formation time for 3 days. In this way, the needed time for keeping the wound open is decreased and thus the risk of infection and the time the patient is bedridden will reduce significantly.

INTRODUCTION

Honey was already used as a drug 5000 years ago. Hon reported that honey was used in treatment of a chronic wound in a patient with epidermolysis bullosa. ¹ White reported that honey has benefits in wound management. ² For centuries, honey has had a valuable state in medicine and has been used for decreasing the risk of infection and improving ulcer healing. Honey is an ancient remedy for infected wounds, which has recently been 'rediscovered' by the medical profession. ³ In recent years, there was a renaissance with a return to using honey as a drug in treatment of wounds, burns and skin lesions. There are several articles about honey an its role in medicine. ⁴ In this clinical trial, we have investigated the effect of honey on the speed of granulation tissue formation in open wounds resulting from laparotomy.

PATIENTS AND METHODS

The honey used in this study was from Clardasht, a mountain area which is located in the North of Iran. A sample from this honey was analyzed by a laboratory in the School of Pharmacy. According to the report, the pH was 5 and the water percentage was 17.5%. Included in this study

were patients who underwent laparotomy due to some surgical indication. The control group included 22 patients and the exam group 11 patients. In the control group, the wound was washed 3 times a day with normal saline. In the exam group, the wound was washed with normal saline 3 times a day and then covered with a thin layer of honey. During the first 5 days after open laparotomy, a tissue sample was taken from the wound and then investigated from the viewpoint of granulation tissue formation time. In the study group, the wound area was irrigated with normal saline every 8 hours. After that, the wound site was covered by a thin layer of honey and a sterile bandage. In all patients, a tissue sample was taken from the wound site within days 1-5. This tissue sample contained a thin layer of skin and the full thickness of subcutaneous tissue. Each sample was frozen in formalin. In the pathology lab, the samples were studied by an expert pathologist for evidence of polymorphonuclear cells, angiogenesis, and onset of granulation tissue. All ethical problems were considered in this study. The aim of this study and methods of works were discussed with the patients and their families. After agreement form assignment, patients were included in this study.

RESULTS

In this study, 11 cases (male = 8, female = 3) and 22 controls (male = 13, female = 9) were included. Mean age \pm SD in the control and study group was 26.95 ± 4.46 and 26.18 ± 3.68 , respectively. The frequency of granulation tissue formation is shown in table 1. Mean time of granulation tissue formation start was 4/27 days (SD 0/7) in the control group and 1/18 days (SD 0/4) in the exam group. The results show that the mean time of granulation tissue formation in both groups was significantly different.

Figure 1

Table 1: Results of granulation tissue formation in the two groups

Group	Day	Frequency	Percent (%Group)
Control Group	3	3	13.6%
	4	10	45.5%
	5	9	40.9%
Study Group	1	9	81.8%
	2	2	18.2%

The independent sample t-test was done between the two groups to compare the time of initiation of granulation formation. A significant difference was found ($p < 0.05$; Table 2).

Figure 2

Table 2: The independent sample t-test was used to compare granulation tissue formation in the two groups

Group	No.	Mean \pm SD	Range	P-value
Control Group	22	4.27 ± 0.7	(2.62, 3.55)	<0.05
Study Group	11	1.18 ± 0.4	(2.69, 3.48)	

DISCUSSION

Several clinical studies reported that honey acts as coverage for infectious wounds and causes wound sterilization after 3-6 days₅, 7 days₆, or 7-10 days₇. Honey can cause necrotic tissue replacement with granulation tissue₈ and, therefore, a decreased necessity of surgical debridement₉. In 1955, Bulman used honey for the dressing of wounds after vulvectomy₁₀. According to the results achieved in this study, the use of honey causes to bring forward granulation tissue formation time for 3 days. Eddy et al. concluded that honey is a low-cost topical therapy with important potential for healing. Its use may be considered in diabetic foot ulcers after a discussion of risks and benefits and in conjunction with standard wound care principles₁₁. In another study carried out on an animal model, Oryan et al. reported that local usage of honey in wound dressing accelerates the

process of wound healing₁₂.

Gethin et al. reported that Manuka honey was effective in eradicating MRSA from 70% of chronic venous ulcers₁₆. Abdelatif et al. reported that safety and efficacy of a new honey ointment were promising₁₄. In contrast, in another study there was no improved healing with honey dressing as compared to usual dressing₁₇. Olaitan et al. suggest that wounds to be treated with honey should be investigated i.e., with swab for the microorganisms present on the wound and for their sensitivity to honey₃. Use of honey in the surgical ward is highly recommended by Khan et al.₁₆. In pressure ulcer, use of honey dressing is effective and practical₁₃. In this way, the needed time for keeping the wound open is decreased and thus the risk of infection and the time the patient is bedridden will reduce significantly.

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