



The Effect of Chamomile Ointment on the Healing of CABG Surgery Wound in the Diabetic Patients

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ABSTRACT

The aim of this research is studying about the effect of chamomile ointment on the betterment of surgery wounds in the diabetic patients. The method of this research is on the basis of random clinical trials. 60 diabetic patients who had gone to Imam Ali hospital in Kermanshah city were selected randomly within two groups of intervention and control. From the second day after the surgery, the wound region was bandaged with the chamomile ointment. From the second day after the surgery, the wound region was cleaned after removing the tracheal tube from the sternum region. Daily washing was done by means of betadine and bandage for 14 days in the control group. The amount of wound healing evaluated by means of the Bates-jensen after the surgery in the following days: 4, 7 and 14. SPSS 16 was implemented in order to analysis the data. The descriptive statistics was implemented in the current research including standard deviation, frequency distribution table and the mean determination. The following tests also were used in order to determine the homogeneity of samples: Kolmogorov-Smirnov test and Mann-Whitney U test. The amount of mean and standard deviation of the total rate of wound healing was $p=0.75$. Therefore, there was not any meaningful difference between the two groups. However, there was a meaningful difference between two groups about 7 days after the intervention ($p<0.001$). The amount of p was 0.002 about 14 days after the intervention. Chamomile ointment is able to improve the wound at least one week after the CABG surgery in the diabetic patients. The amount of this improvement is 3%.

Keywords: Chamomile Plant Ointment, Wound Healing, Cabg Surgery, Diabetic Patients

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Diabetes mellitus is the most common chronic metabolic disorder along with the increasing of blood glucose in the body of human [1]. The mentioned disorder might be because of the lack of Insulin or the resistance of peripheral tissues to the insulin. This kind of disorder also might be

INTRODUCTION

because of the reduction of secretion from the beta cells of the pancreatic islets of Langerhans (Diabetes mellitus type 2) [2]. About 150 million of people suffer from this kind of disease around the world. It is expected that this estimation will reach to its double amount up to the next 20 years. This kind of disease contains microvascular and macrovascular symptoms. The chronic phase of this disease is including stroke, Lower limb amputation and symptoms of cardiovascular [3]. According to the forecasting of World Health Organization, it is expected that this number will increase to its double amount. Today, more than 3 million people suffer from the diabetic disease around the world. This number will reach to 7 million people if there would not be any effective procedure. Generally, the symptoms of diabetic disease are as the following: overeating, over urinating, blurred vision, headache, drowsiness, tiredness, taking a long time of wound healing and polydipsia. When it takes a long time to improve the wound, the mentioned person may have diabetic disease [4]. About 15 % of diabetic patients suffer from the wound in their lower limbs [6]. This kind of wound is because of the lack of molecular cell signals which are required for the wound healing such as granulation, epilation and fibroplasia. Retinopathy, neuropathy, ocular complications and diabetic ketoacidosis are other symptoms of diabetic disease. There are a lot of treatments for this kind of disease such as CABG surgery [5]. There is also a new medicine called Angi pars which have been discovered by Iranian scholars. The mentioned medicine contains of melilotus officinalis extract which is able to prevent the following symptoms: skin aging, microcirculation improvement, and the anti-inflammatory effects [7]. Unfortunately, many patients suffer from retinopathy and increasing the urea and liver enzymes. Among the herbal treatments, still there is not any absolute treatment for diabetic disease. Therefore, the researcher decided to investigate the new herbal medicine which had been accepted in the foreign studies. The mentioned medicine was accepted for non-diabetic diseases in the foreign countries. The name of this medicine is chamomile plant ointment [8]. The scientific name of chamomile is *Matricaria chamomilla*. It is a kind of plant which is from the chicory family. The useful part of this plant is its capitule essence. This essence is including of many terpenes such as Farnesene, chamazulene and alpha bisabolol. Moreover, the ingredients of this essence are as the following:

Tricin, Proazolen, Herniarin, Flavonoid, Choline and Farnesene. The recent studies indicated the anti-inflammatory effect of chamomile which is related to the chamazulene, bisabolol, antispasmodic effect. The anti-inflammatory effects are derived from chamazulene and bisabolol essence. There was a comparative study about the effect of chamomile solution and hydrocortisone ointment on the healing of colostomy wound. Chamomile also improves the colostomy wound and removes itch and dermatitis [9].

MATERIALS AND METHODS

The current study is a kind of random clinical trials with the ethical code of IR.TUMS.REC.1394.891 from the ethic committee of Tehran University of Medical Sciences including an intervention group and control group. In the intervention research, the ointment was an independent variable and the wound healing is the dependent variable. The samples of the current study contains of 60 diabetic patients who had a CABG surgery in the Imam Ali Hospital of Kermanshah. The following terms are required for the CABG surgery: suffering from the diabetic type 2, malnutrition, skin diseases, endocrine diseases, having allergy to the chamomile ointments, the lack of corticosteroid consumption, immunosuppressive, cytotoxic, the lack of alcohol consumption, pneumothorax, and respiratory, the lack of having any experience about scar, and having a surgery in the sternum region. The instrument was divided into two parts: the first part was related to the demographic information such as age, sex, income, level of education, the amount of vegetable and fruit consumption and daily exercises. The wound assessment tool is Bates-jensen. This tool is designed in 2010. Ghafari *et al.*, (2012) have confirmed the validity and reliability of this assessment tool. This tool contains 13 items. The following 12 items were evaluated: the wound size, depth of wound, the edges of the wound, the amount of necrosis tissue, type of exudate, the amount of exudate, the color of the skin around the wound, granulation and epithelialization of the wound and the type of necrosis tissue. The range score of each item is between 1 and 5. The wound gets the score 1 in its best mood. It also gets 5 in its worst mood. Two days after the surgery, the wound in the sternum region was bandaged by the chamomile ointment after washing with the betadine. The process of research in the control group was as the following:

the wound was cleaned by means of betadine. The bandages were changed every day. This process took 14 days. Since different features play an important role in the process of wound healing like age, consumption of fruits and vegetables, the distribution of samples was randomly. The chamomile ointment was provided in the Institute of Medicinal Plant in Karaj with the cooperation of researcher by the Jars 250 gram. The amount of wound healing was investigated by means of BWAT tool. SPSS 16 was also used in order to analysis the data. Some descriptive statistics methods were used in the current research as the following: mean determination, standard deviation, frequency distribution table, Kolmogorov-Smirnov test, Chi-squared test and Mann-Whitney.

RESULTS

According to the Chi-squared test, the samples were homogenous through the following factors: age, sex, income, marital status, vegetables and fruit consumption. Based on the Kolmogorov-Smirnov test, the distribution of data was not in the normal mode ($p=0.003$). Hence, the mean and standard deviation of total number in both groups were calculated by means of Mann-Whitney test after 4 days of intervention ($p=0.75$). There was not a significance difference between two groups based on the wound healing. After seven days of intervention, there was a significance difference through the standard deviation and mean between two groups ($p < 0.001$). There was also significance difference between two groups after 14 days ($p= 0.002$).

Table1: Mean and standard deviation of research samples based on age among three different groups

Group/ Age	Mean – standard deviation
Chamomile	61± 6.7
Control	61.6± 7.3
Test	Khi ₂
P- value	P= 0.922

DISCUSSION AND CONCLUSION

Regarding the improvement of the wound after 4 days of surgery, there wasn't any significance variance between the two groups. Afshari *et al.*, (2015) in their non-consistent study, argued about the effect of chamomile ointment and calendula on the dermatitis diapers of 90 infants under 1 year old [10]. The amount of wound healing was more in the chamomile group rather than the calendula group. As it mentioned above, there is not any statement about the dosage of this ointment in the current study. The chamomile group was not compared with the control group, but it was compared with the group with the calendula ointment. It might be a significance difference between the two ointments based on the amount of their healing.

Table 2: Absolute and relative frequency distribution of the demographic feature of participants

	Chamomile		Control		p-value
	Absolute frequency	Relative frequency	Absolute frequency	Relative frequency	
Female	18	60	17	56.7	0.955
Male	12	40	13	43.3	0.955
Married	10	33.3	8	26.7	0.549
Single	20	66.7	22	73.3	0.549
Adequate income	15	50	13	43.3	0.811
Average income	7	23.3	7	23.3	0.811
Low income	8	26.7	10	33.3	0.811
Athlete	14	46.7	7	23.3	0.155
Non-athletes	16	53.3	23	76.7	0.155
Smoker	11	36.7	12	40	0.725
Non smoker	19	63.3	18	60	0.725
Consumption of vegetables	23	76.7	17	56.7	0.056
The lack of vegetables consumption	7	23.3	13	43.3	0.056

Table 3: Comparison of wound healing number within two groups after 4, 7 and 14 days of intervention

Improvement Group	For days after the bandage (mean rank)	Seven days after the bandage (mean rank)	14 days after the bandage (mean rank)
Chamomile	31.17	24	22.67
Control	38.33	37	29.83
Test	Mann-Whithney	Mann-Whithney	Mann-Whithney
p-value	P= 0.754	p< 0.0001	P= 0.002

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