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Studying the Effect of German Chamomile in Alleviating CABG Surgery Wound Pain among Diabetic Patients

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ABSTRACT
Coronary arteries among diabetic patients has three times prevalence and one of main procedures in treatment of these patients is CABG surgery which leads to significant pain at the sternum area, thus pain alleviation among diabetic people undergone CABG operation is among main needs. From other side, analgesic effects of German Chamomile in menstrual pains and other pains have been demonstrated. Thus, the researcher decided to examine the effect of German Chamomile on pain alleviation of surgery wound. This study is random clinical trial type with intervention and control group. 60 people among diabetic patients admitted to Kermanshah Imam Ali hospital for CABG operation have been assigned randomly at two 30-person group as intervention and control groups. From second day after surgery operation after bringing out the sternum area tracheal tube, after washing with betadine, the intervention group patients have been bandaged by 3% chamomile ointment which was made by Karaj University Jahad organization medical herbs research center in a daily basis. In control group, only daily washing was carried out by betadine and bandage. This has been done till day 7 after the operation, the pain extent has been evaluated by visual analogue scale (VAS) in days 3, 4, and 7 after intervention. One used SPSS version 16 for data analysis. In this study, descriptive statistics approaches are used for describing the samples including frequency distribution, average determination, SD and t independent test and chi 2 for study objectives and hypotheses and determining the samples homogeneity. Using independent t test, the average and SD of main score is calculated and compared between two groups at third day and P=0.005 indicating that two groups have significant difference in terms of pain level and pain in the chamomile group is smaller. Using the same test, the average and SD of pain score has been calculated at day 4 and 7 that have significant difference and pain extent was smaller in chamomile group 0.005 and 0.014 respectively. The findings have shown that using 3% chamomile ointment after at least three days lead to alleviating the pain of CABG wound among diabetic patients.

Key words: Chamomile Ointment, Pain, CABG Surgery, Diabetic Patients

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INTRODUCTION

Diabetes mellitus (DM) is most prevalent chronical metabolic disorder with increase blood sugar in human that can emanates from loss of insulin (DM type 1) or resistance of peripheral tissues to insulin with decreased secretion of

insulin from pancreas islets of Langerhans beta cells (DM type II) [1].

DM is the most common disease from metabolism disorders. Pathogeny of this morbidity is very high both in terms of treatment costs and disability and it is among most important healthcare issue of human. This disease is the fifth mortality cause of western societies and the fourth reason of going to physician. 15% of healthcare costs in United States is assigned to it. According to last report of world health organization it is predicted that in 2015, the diabetic populations is increased 122% and in developing countries is increased 170%, and the number of patients go up from84million to 228 million people [2]. Its global incidence is very high and it continues to be heightened [3]. Almost 150 million people around the world are afflicted by it and it is expected that this would be doubled during coming 20 years [4]. This disease has microvascular and macrovascular [5], so that cardiovascular morbidities, brain stroke, and lower extremity amputation are among main causes of its treatment costs [6]. The main cause of mortality in diabetic patients is heart diseases. 65 to 80 % of diabetic people die due to cardiac diseases. Diabetic diseases are at high risk of cardiac disease and these problems are developed at lower ages. Diabetic patients also have high risk of affliction by silent heart ischemic and one third of heart strokes among these patients occurs without stroke known symptoms. Coronary arteries bypass graft (CABG) is one of standard surgery procedures for coronary arteries diseases in diabetic patients and in 60%of patients this method is used. This surgery causes large wounds in sternum area and leg saphenous vein area and severe pain in chest [7]. From other side, chamomile contains a group of lipophile substances that has great anti-inflammatory effect and has a group of hydrophile substances with strong spasmolytic effect. Lipophile substances include sesquiterpene (chamazulene) and hydrophile includes flavonoid (Apigenin) and Coumarins. Anti-inflammatory activities of chamomile sap are rather due to matricin compounds (chamazulene prisoner), bisabolol, and its oxides which make up the main compounds existing in the sap. These activities are attributable to their antioxidant such as what is done on the inhibition of prostaglandins and Leukotriene synthesis. Apigenin spasmolytic effect with regard to papaverine is four times greater. In addition to thwarting the release of histamine, apigenin inhibits the formation of the products of 5-lipoexigenasis and cyclooxygenase like 12-lipoxygenase. Meanwhile, it is revealed that apigenin can be connected to benzodiazepine and have the anti-anxiety effect [8].

Chamomile has anti-inflammatory effects, anti-spasm in womb smooth muscles, reduction of menstrual cramp pain and dysmenorrhea treatment and preventing precocious birth and it is also anti-flatulence and it is used for treatment of ulcers. Similarly, it is used as anti-bacterial, antifungal, tranquilizer and laxative. Chamomile is effective for treatment of skin inflammations, children urine burns, nipple cracking [8]. Thus, the researcher decided to examine the chamomile plant effect on alleviating the pain of CABG wound in diabetic patients.

MATERIALS AND METHODS

This study is random clinical trial, including an intervention and control group. In this study, intervention type (chamomile ointment) is considered as independent variable and pain level as dependent variable. The study sample includes 60 people among diabetic patients who had CABG operation in Imam Ali hospital of Kermanshah and had the admittance conditions of the study and with consent of participation in the study they have divided into two groups. The criteria of entering was undergoing CABG, affliction by DM type II for two years, non-affliction to contextual diseases such as malnutrition, skin disease and endocrine disease, absence of allergy to chamomile ointment by smearing the ointment to internal part of right arm for 20 minutes, lack of alcohol use, lack of affliction to the morbidities after CABG like diaphragm paralysis, myocardial infarction, pneumothorax, hemothorax and respiratory deficiency, lack of addiction to narcotics and psychedelics and the criteria for withdrawal from the study is sever need to painkiller and prescription of painkiller by physician and need to repeated surgery. The tool of investigation includes two parts and the first part is related to demographic information like gender, income extent, vegetable and fruits daily consumption, daily exercise. One used visual analog scale (VAS) for examining the pain level. This scale is developed 60 years ago by Maxul and was used for determining pain severity and has high trust and it is in the form of a 10 cm ruler with lack of pain at the left end and highest level of pain at the right end. This scale is used in acute clinical pains, chronic and progressive and

understanding it is easy for the patient. The procedure is that at the second day after surgery after wound washing with betadine and cleaning it bandage with a one or two layer two or three mm 3% chamomile ointment tis applied on patients' sternum area wound. In control group only, the wound is washed daily by betadine and the bandages were changed every 24 hours this was done for 7 days. Since many factors such as age, fruit and vegetable consumption etc. have bearing on wound healing, the distribution of samples in two groups is done randomly so that the studied samples would be homogeneous. Chamomile ointment is made in medical herbs research center of University Jahad situated in Karaj with collaboration of researcher in 25-gram jars.

The wound pain extent has been studied in days 3, 4 and 7 after intervention using VAS. SPSS version 16 is used for data analysis. In this study for describing samples the descriptive statistics methods are used including tables of frequency distribution, average determination, SD and t test and chi 2 are used for determining the homogeneity of samples.

RESULTS

Average and SD of pain score is calculated and compared using t test between two groups at third day and P=0.005 suggesting that two groups have significance difference in pain degree and pain was less in chamomile group. Using the same test, the mean and SD of pain score have been calculated and comparing at fourth day and has significant difference and pain degree was less in chamomile group with P=0.005 and P=0.014, respectively.

DISCUSSION AND CONCLUSION

Upon examining the degree of pain at third day after intervention it has been noticed that the pain reduction extent of chamomile group has significant decrease with respect to control group. In an inconsistent study by Pajandeh *et al*., 2008, with the title of effect of chamomile essence on healing and episiotomy pain in the first birth women at day 7 and 14 their pain degree is measured by pain scale ruler that at day 7 and 14 chamomile group had less pain than control group, but it hasn't significant difference with control group based on Mann Whitney test [9]. Maybe the reason of this result is that in this study one used sit-down bathing chamomile, while in this study the 3% ointment bandage is used. In sit down bathing, the chamomile contact the skin shorter time than bandage and in Pajandeh's study the chamomile density is not given and maybe smaller density is reached to the skin.

Table1: 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
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 2: Comparison of pain in days 3, 4 and 7 after dressing

Pain / Group	3th day after dressing M±SD	4th day after dressing M±SD	7th day after dressing M±SD
Chamomile	5/7±1/6	3/9±1/4	2/1±1/2
Control	7±1/3	6±1/3	4±1/3
Test	In Dependent T	In Dependent T	In Dependent T
P-Value	P=/005	P=/005	p=/014

In a consistent study, Modarres *et al*., (2011) titled as comparing the effect of acid mefenamic and chamomile capsule on primary dysmenorrhea, female students received four 400 mg chamomile capsule in a daily basis for two successive cycle of menstrual at time interval 6 hours and the results either at first month and second month showed that in the group taking chamomile capsule the girls had less pain with regard to acid mefenamic group. One should notice that in this study the chamomile capsule with 400 mg dosage is used which suggest the positive effect of other chamomile forms other than ointment on pain relief. In another consistent study Yazdani *et al*., (2004) compared the effect of chamomile and fennel drip on 60 patients with primary dysmenorrhea in two treatment cycle and announced that chamomile drip in reduction of dysmenorrhea pain severity in a significant manner [11]. In a consistent study by Jenabi *et al*., (2010) examining the effect of chamomile tea in relief of primary dysmenorrhea. Intervention group had less pain [12]. In this study, one used chamomile tea instead of chamomile ointment and the menstrual pain is examined. This study shows that chamomile influences on pain relief of other body areas and it is also effective in other pharmaceutical forms.

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