e - ISSN – 2349-0691

AMERICAN JOURNAL OF ADVANCES IN NURSING RESEARCH

Journal homepage: www.mcmed.us/journal/ajanr

A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF PAPAYA DRESSING VERSUS HONEY DRESSING ON WOUND HEALING AMONG DIABETIC PATIENTS

Dr. Mahendra Vishwakarma*

Professor, Bhagyoday Tirth Nursing College, Sagar, Madhya Pradesh, India.

Article Info

Received 25/11/2020
Revised 15/12/2020
Accepted 27/12/2020

Key word:
Comparative study, Assess, Effectiveness, Papaya dressing, honey dressing, wound healing and diabetic patient.

ABSTRACT

Back ground of study: Diabetes mellitus (DM) refers to a group of metabolic disorders characterized by high blood glucose. Diabetic wound is the one of the most common and devastating complication of diabetes mellitus and it's management is very long and costly and diabetic wound takes more time for recover. Indian papaya and honey have great role in enzymatic debridement in wound healing. Pharmacologic aspect green papaya has two enzymes: papain and chymopapain, which have digestive properties and also the ability to dissolve dead tissue without damaging living tissue. Honey has high osmolarity which prevents bacterial growth, reduce humidify, and promote healing. Problem statement: A comparative study to assess the effectiveness of papaya dressing versus honey dressing on wound healing among diabetic patients admitted in Bhagyday Tirth Hospital Sagar Madhya Pradesh. Objectives: (1) To assess the level of wound in experimental group I and group II. (2) To assess the effectiveness of papaya dressing on wound healing in experimental group I. (3) To assess the effectiveness of honey dressing on wound healing in experimental group II. (4) To compare the effectiveness between papaya dressing and honey dressing on wound healing among diabetic patient. (5) To associate the finding of the effectiveness of papaya dressing and honey dressing between selected demographic variables. Methodology: The research design used for this study was quasi experimental study design. Conceptual framework was based on modified Donabedian model, helping in hospital setting. The sample size was 40, in which 20 samples were in experimental group I and 20 samples in experimental group II. The samples were selected by using systemic random sampling. The tools used for this study was BWAT (Bates- Jenson wound assessment tool) scale to assess the severity of wound. Result and discussion: The data gathered were analyzed using descriptive and inferential statistics. The study revealed that the post test mean score in experimental group I was 1.65(SD ± 0.75) and calculated't' value was 4.36 which was significant at $p< 0.05$ level and in experimental group II mean score was 1.75 (SD ± 0.72) and 't' value 3.56 which were significant at $p<0.05$ level. The study revealed that papaya dressing and honey dressing both are effective in wound healing among diabetic patients but papaya is more effective than honey.

Corresponding Author

Dr. Mahendra Vishwakarma
Email:- mh.awgp@gmail.com

INTRODUCTION

Diabetes mellitus is deficiency of insulin that results too much sugar in the blood. Diabetes can have far-reaching and devastating physical and economic

consequences; and nontraumatic amputations, blindness in working-age adults, and end-stage kidney disease occurs due to diabetes. It is cause of death from disease, primarily because of the high rate cardiovascular disease (myocardial infarction [MI], stroke, and peripheral vascular disease) among diabetic patients. Complication of diabetes needs to proper planning for care of the patient in at home or hospital. Recognition of these risk factors will enable care to accommodate the patient's particular vulnerabilities and will help to ensure that suitable support is provided to prevent complication.[1] Hospitalization rates for people with diabetes are 2.4 times greater for adults and 5.3 times greater for children than the general population. The economic cost of diabetes continues to increase because of increasing health care costs and an aging population so this study helpful for proper care of diabetes wound with minimum cost.[2]

In 2003, there were 189million diabetes in the world; the projected figure for 2025 is 324 million. In 1984 professor Lefebvre (South India) said, increase impaired glucose level in diabetes caused every years about 3.2 million people die in the world. He reported approximate 30-33million people of diabetes in India and today, every 4thdiabetic's people is an India in the world. According to various studies, in India nearly 98 million people may have type2 diabetes by 2030. The 'Lancet Diabetes & Endocrinology' journal published the study type 2 diabetes will raise more than 20 % worldwide over the next 12 years that the insulin needed to effectively treat type2 diabetes . In 2017, reported diabetes is much higher in Kerala than in other states with prevalence of 19.4%. According yearly report April 17, 2018 at 53 deaths per 1, 00,000 populations, had the highest death rate from diabetes among Indian states, in Tamilnadu, followed by Punjab (44) and Karnataka (42) and all report show significantly more than the national average (23). Madhya Pradesh is sitting on diabetes time bomb. In urban area people diagnosed pre- diabetic with 21.5 per cent while in rural areas are on the edge of becoming diabetic with 18.5 per cent. This was showed by the latest study of Indian Council of Medical Research- India Diabetes (ICMRID). The total incidence of pre-diabetic cases in the state is about 19.2%. [3]

The journal "Jamaica gleaner" says in an article that not used sterile technique in wound dressing still no report of infection from using papaya dressing due to bactericidal and antifungal properties. Due to antibacterial properties of papaya, it can inactivate many bacteria and parasites. Honey dressing shows a positive effect on wound healing were seen in the reduction of wound size after treatment, it has significant ($p<0.05$) difference in wound size after intervention. This study prove that honey dressing is effective in reduce size and depth of wound and promote the healing. The papaya dressing and honey dressing are more effective to heal wound and cost effective, so everyone use it.[4]

STATEMENT OF THE PROBLEM

A comparative study to assess the effectiveness of papaya dressing versus honey dressing on wound healing among diabetic patient admitted in Indira Gandhi District Hospital, Seoni (Madhya Pradesh).

OBJECTIVES

- To assess the level of wound among diabetic patient in experimental group I and group II.
- To assess the effectiveness of papaya dressing on wound healing among diabetic patient in experimental group I.
- To assess the effectiveness of honey dressing on wound healing among diabetic patient in experimental group II.
- To compare the effectiveness between papaya dressing (group I) and honey dressing (Group II) on wound healing among diabetic patient.
- To associate the finding of the effectiveness of papaya dressing and honey dressing between selected demographic variables.

HYPOTHESES

H1: There is a significant difference between the pre test and post test scores among diabetic patients in experimental group I and II.

H2: There is a significant difference between the post test level of wound healing among diabetic patients in Group I (Papaya dressing) and Group II (Honey dressing).

H3: There is a significant association between level of wound healing among diabetic patients in Group I (Papaya dressing) and Group II (honey dressing) with their selected socio demographic variables.

METHODOLOGY

The research design used for this study was quasi experimental study design. Conceptual framework was based on modified Donabedian model, helping in hospital setting. The sample size was 40, in which 20 samples were in experimental group I and 20 samples in experimental group II. The samples were selected by using systemic random sampling. The tools used for this study was BWAT (Bates- Jenson wound assessment tool) scale to assess the severity of wound. In experimental group I applied papaya dressing and in experimental group II applied honey dressing. After cleaning the wound with normal saline, smashed papaya was applied over the wound in group I and 5ml honey was applied over the wound in group II and covered the wound with

sterile gauze piece. The post test was done by using BWAT scale on 7th day for both experimental groups I and II.

DESCRIPTION OF THE TOOLS:

With extensive review of literature and consultation with expert opinion the tool was selected to generate the data. The tools for data collection consist of two sections-

Section A: Demographic variables (Age, gender, religion, income, educational status duration of ulcer and grade of ulcer).

Section B: Bate- Jensen Wound Assessment tools

The Bate- Jensen Wound Assessment (BWAT) method uses the scoring of several factors to determine the state of a wound. According to the BWAT instruction for use, this tool measure 13 wound components which are independently ranked from one to five. Sub-score of one on any item indicates that the specific factor being measured is non-harmful while sub-score of five indicates that the factor is extremely necrotic. The wound aspects considered are as follows: size, depth, edges, undermining, necrotic tissue type, necrotic tissue amount, exudates type, exudates amount, skin colour, oedema, in duration, granulation and epitheliazation. The sum of these 13 scored items reveals the overall severity score of the wound, which is tracked weekly throughout the wound healing process.

Scoring procedure

Each items had a score from 1-5 depending on the severity of the wound. The minimum and maximum possible score was 13 and 65 respectively. The score interpretation of the wound healing status was done as follows:

Table 1: Score interpretation of diabetic wound healing status

Score	Diabetic wound status
1-22	Mildly unhealthy
23-44	Moderate unhealthy
45-65	Severe unhealthy

ATA COLLECTION PROCEDURE

After obtaining permission from ethics committee of Indira Gandhi District Hospital Seoni and HOD of department of Surgical Ward the data collection was done from 15/08/2019 to 30/08/2019. Rapport established with diabetic ulcer patients after brief introduction about the study and its purpose. The written and oral content was obtained from the patients after fully explaining the procedure of the study.

On the first day of data collection the researcher selected samples as per the inclusion criteria. Pre test was done on the first day using Bate- Jensen Wound Assessment scale and scoring system. Patients in the experimental group I received papaya dressing and experimental group II received honey dressing every morning and evening, duration of each dressing takes 10 to 15 minutes approximately, dressing was done twice a day for 6 consecutive days. Post test was conducted at 7th day using Bate- Jensen wound assessment scale and scoring system for both groups.

RESULT

The data gathered were analyzed using descriptive and inferential statistics. The study revealed that the post test mean score in experimental group I was 1.65(SD ± 0.75) and calculated't' value was 4.36 which was significant at $p< 0.05$ level and in experimental group II mean score was 1.75 (SD ± 0.72) and 't' value 3.56 which were significant at $p<0.05$ level. The study findings revealed that is no association between the level of **age (χ^2= 9.63, df=4, p=0.05)** wound score among diabetic patients and selected demographic variables expect for age in experimental group I and in experimental group II selected demographic variables expects for religion **(□^{2}=19.09, df =6, p = 0.004)** and **income (□^{2}=14.64, df=4, p = 0.006)**. The study revealed that papaya dressing and honey dressing both are effective in wound healing among diabetic patients but papaya is more effective than honey.

DISCUSSION

With regard to age in experimental group I it was seen that 1(5%) the age group between 20-30 years, 3(15%) the age group of 30-40 years, 8(40%) the age group between 40-50 years, 8(40%) the age group between 50-60years. In experimental group II, the age group between 20-30years there was no patients of this age group, 4(20%) in the age group between 30-40 years, 9(45%) in the age group of 40- 50 years, 7(35%) between the age group 40-50 years. Regarding gender 12(60%) were male and 8(40%) are female in experimental group I. While taking the experimental group II 13 (65%) were males and 7(35%) were females. In the view of religion in experimental group I, 11(55%) were Hindus, 7(35%) were Muslims, 1(5%) were Christian and 1(5%) were others. In experimental group II 12(60%) were Hindus, 6(30%) were Muslim, 2(10%) were others and were no Christian. When determining the educational status in experimental group I 2 (10%) had illiterate, 3(15%) had schooling, 7 (35%) were higher education, 4(20%) certificate/ diploma course and 4 (20%) had graduate/postgraduate. In experimental group II, the

patients 2 (10%) had illiterate, 4(20%) had schooling, 6(30%) had higher education, 5(25%) certificate/ diploma and 3(15%) had graduate/ postgraduate. While comparing the duration of diabetic ulcer in experimental group I, the patients with diabetic ulcer 4 (20%) belongs to 0-2 months, 9 (45%) belongs to 2 - 4 months and 7 (35%) belong to above 4 months. In experimental group II the patients with diabetic ulcer 5 (25%) belongs to 0 -2 months, 9 (45%) belongs to 2-4 months and 6(30%) belongs to above 4 months. Regarding the grade of ulcer 12 (60%) were have Grade I ulcers, and 8(40%) were have Grade II ulcers in experimental group I, while compare with experimental group II 13 (65%) were have Grade I and 7 (35%) were Grade II.

Table 2: Frequency and percentage distribution of demographic variables among patients with diabetic wound

Demographic variables		Experimental group I (n=20)		Experimental group II (n=20)	
		Frequency	%	Frequency	%
Age	20-30yrs	0	0	1	5
	30-40yrs	4	20	3	15
	40-50yrs	9	45	8	40
	50-60yrs	7	35	8	40
Total		20	100	20	100
Gender	Male	13	65	12	60
	Female	7	35	8	40
Total		20	100	20	100
Religion	Hindu	12	60	11	55
	Muslim	6	30	7	35
	Christian	0	0	1	5
	Others	2	10	1	5
Total		20	100	20	100
Educational status	Illiterate	2	10	2	10
	Schooling	4	20	3	15
	Higher education	6	30	7	35
	Certificate/diploma	5	25	4	20
	Graduate/postgraduate	3	15	4	20
Total		20	100	20	100
Income	0-5000rs	6	30	5	25
	5000-10,000rs	8	40	8	40
	Above 10,000	6	30	7	35
Total		20	100	20	100
Duration of wound	0-2 month	5	25	4	20
	2-4 month	9	45	9	45
	Above 4 month	6	30	7	35
Total		20	100	20	100
Grade of diabetic wound	Grade1	13	65	12	60
	Grade2	7	35	8	40
Total		20	100	20	100

Table 3. Frequency and percentage of pre test and post test level of wound healing among experimental group I (Papaya dressing)

Papaya dressing (Experimental group I)	**Mildly Unhealthy**		**Moderately Unhealthy**		**Severely unhealthy**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Pre test	0	0	17	65	3	15
Post Test	9	45	8	40	3	15

Table 4: Mean, Standard Deviation and mean difference of pre test and post test Level of wound healing among experimental group I (Papaya dressing)

Papaya dressing	No. of patients	Mean	SD	Mean difference	SD difference	paired t- test	Table value
Pre test	20	2.15	0.37				df=19 2.29 P=000 S*
Post test	20	1.65	0.75	0.50	0.38	4.36	

Table 5: Frequency and percentage distribution of pre test and post test level of wound healing among experimental group II (Honey dressing)

Honey dressing (Experimental group I)	Mildly unhealthy		Moderately Unhealthy		Severely Unhealthy	
	No.	%	No.	%	No.	%
Pre test	0	0	17	65	3	15
Post Test	8	40	9	45	3	15

Table 6: Mean, standard deviation and mean difference pre test and post test level of wound healing among experimental group II (Honey dressing)

Honey dressing	No. of patients	Mean	Std. Deviation	Mean difference	Std. deviation difference	Student paired t-test	Table t - value
Pre test	20	2.15	0.37				df=19 (2.09) P=000 S*
Post test	20	1.75	0.72	0.40	0.35	3.56	

Table 7: Comparison of pre test and post test level of wound healing among Experimental group I (Papaya dressing group) and Experimental group II (Honey dressing group)

	Group	No. of patients	Mean	SD	Mean Difference	Independent t-test (table value- 2.02)
Pretest	Papaya dressing	20	2.15	0.37	0.00	t=1.032
	Honey dressing	20	2.15	0.37		
Post test	Papaya dressing	20	1.65	0.75	0.10	t=2.03
	Honey dressing	20	1.75	0.72		

Table 8: Association between diabetic wound healing score with selected demographic variables (Papaya dressing group)

Demographic Variables		Pretest Level Of Wound						Total	Chi square
		Mild unhealthy		Moderate unhealthy		Severe unhealthy			
		F	%	f	%	f	%		
Age	20-30yrs	0	0	0	0	0	0	0	$\chi 2=6.56$ df = 2 p = .04 S*
	30-40yrs	0	0	4	20	0	0	4	
	40-50yrs	0	0	9	45	0	0	9	
	50-60yrs	0	0	4	20	3	15	7	
Total		0	0	17	85	3	15	20	
Gender	Male	0	0	11	55	2	10	13	$\chi 2=0.00$ 4 df = 1 p= 0.95 NS
	Female	0	0	6	30	1	5	7	
Total		0	0	17	85	3	15	20	

Religion	Hindu	0	0	10	50	2	10	12	$\chi 2$=3.01 df= 2 p=0.22 NS
	Muslim	0	0	6	30	0	0	6	
	Christian	0	0	0	0	0	0	0	
	Others	0	0	1	5	1	5	2	
Total		0	0	17	85	3	15	20	
Education	Illiterate	0	0	1	5	1	5	2	$\chi 2$=6.67 df=4 p=0.16
	Schooling	0	0	4	20	0	0	4	
	Higher education	0	0	6	30	1	5	6	
	Certificate/	0	0	3	15	2	10	5	
	diploma								
	Graduate/ postgraduate	0	0	3	15	0	0	3	
Total		0	0	17	85	3	15	20	
Income	0-5000rs	0	0	5	25	1	5	6	$\chi 2$=0.07 df=2 p=0.97 NS
	5000-10,000rs	0	0	7	35	1	5	8	
	Above 10,000rs	0	0	5	25	1	5	6	
Total		0	0	17	85	3	15	20	
Duration of ulcer	0-2month	0	0	4	20	1	5	5	$\chi 2$ =1.53 df=2 p=0.47 NS
	2-4month	0	0	7	35	2	10	9	
	Above 4 month	0	0	6	30	0	0	6	
Total		0	0	17	85	3	15	20	
Grade of ulcer	Grade1	0	0	11	55	2	10	13	$\chi 2$=0.04 df=1 p=0.95 NS
	Grade2	0	0	6	30	1	5	7	
Total		3	15	17	85	3	15	20	

CONCLUSION

The data gathered were analyzed using descriptive and inferential statistics. The study revealed that the post test mean score in experimental group I was 1.65(SD ± 0.75) and calculated‘t’ value was 4.36 which was significant at p< 0.05 level and in experimental group II mean score was 1.75 (SD ± 0.72) and ‘t’ value 3.56 which were significant at p<0.05 level. The study revealed that papaya dressing and honey dressing both are effective in wound healing among diabetic patients but papaya is more effective than honey.

REFERENCES

1. Acton C. Med honey A Complete Wound bed preparation product. British Journal of Nursing 2008; 17(11). P; 44-45.
2. Edwards R, Harding KG. Bacteria in wound healing. Current opine infect Dis. 2004;17:91.
3. www.ipapharma.org/pt/august08/Articles.pdf
4. Locono JA, Erlich HP, Gottrup F. Wound biology and management. 1st ed. oxford Medical Publications; 1998:10-22.