

A Study to Assess The Effectiveness of Papaya Dressing on Diabetic Foot Ulcer Among Clients Admitted In Vmch, Karaikal

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I. INTRODUCTION

Diabetes mellitus is a metabolic disorder caused by absolute or relative deficiency of insulin. Diabetic foot is the most common complication of diabetes mellitus. The number of people with diabetes in the world is expected to double between 2000 and 2030 i.e., it currently affects more than 194 million people worldwide and is expected to reach 333 million by 2025, with the maximum burdens falling upon developing countries.

The management of diabetic foot ulceration is based on the control of blood sugar, wound debridement, identification and management of infection, proper dressing and definitive wound closure. Raw papaya contain plenty of latex which is a rich source of four cysteine endopeptidases namely papain, chymopapain, glycyloendopeptidase and caricain. Proteolytic enzymes have great role in enzymatic debridement in Ulcer/Wound healing.

Papaya induces development of healthy granulation tissue, as the fruit is rich in vitamin C which helps in conversion of proline to hydroxyproline which is a specific indicator of collagen content laid during wound healing. It doesn't act on normal tissue as it acts only on tissues lacking α 1 antitrypsin plasmatic antiprotease that inhibits proteolysis in healthy tissues. Papaya extract breaks down the biofilm defenses, as this biofilm gives protection to bacteria from ultraviolet rays and oxygenation. At the same time it is harmless to viable tissue. It is effective in removing dead cells, preventing burn wound infection, defibrinating wounds. It is active over a wide pH range from 3 to 12.

Possible Scientific Mechanism Of Wound Healing By Papaya In Diabetic Wounds

1. Decreased Total Cholesterol And Low Density Lipoproteins
2. Increased dorsal Thickness of Skin
3. Improved Nitric Oxide Production.
4. Increased Oxidant Generation

Papaya as an important and promising natural medicinal plant, which could be utilized in several pharmaceutical and medical applications because of its cost effectiveness, availability and safety

II. NEED FOR THE STUDY

WHO reports that 32 million people had diabetes in the year 2000. The IDF estimates the total number of diabetes patients to be around 40.9 million in India and there is further set to raise to 69.9 million by the year 2025. Diabetes is a serious condition for the individual and society. Its rapidly increasing global prevalence is a significant cause of concern. India leads the world with largest number of diabetic patients earning the dubious distinction of being termed the '**diabetes capital of the world**'.

Diabetes is common in Asian Indians. India has the greatest number of people with diabetes. India considered as the Diabetic capital of the world. It alone currently counts over 35 million people harboring diabetes. It increases the morbidity and mortality of the diabetic clients and is the major cause of non-traumatic lower limb amputations. Diabetic foot ulcer is a major complication of diabetes mellitus, and probably the major component of the diabetic foot. Wound healing is an innate mechanism of action that works reliably most of the time.

A key feature of wound healing is stepwise repair of lost extra cellular matrix (ECM) that forms the largest component of the dermal skin layer. But in some cases, certain disorders or physiological insult disturbs the wound healing process. Diabetes mellitus is one such metabolic disorder that impedes the normal steps of the wound healing process. Many studies show a prolonged inflammatory phase in diabetic wounds, which causes a delay in the formation of mature granulation tissue and a parallel reduction in wound tensile strength

III. STATEMENT OF THE PROBLEM

A study to assess the effectiveness of papaya dressing on diabetic foot ulcer among clients admitted in VMCH, Karaikal.

IV. OBJECTIVES

1. To assess the pre test level of diabetic foot ulcer among the experimental and control group.
2. To assess the Effectiveness of papaya dressing on Diabetic foot ulcer among Experimental group.
3. To find the association between post test score of papaya dressing on diabetic ulcer with selected demographic variables

HYPOTHESES

H1- There is a significant difference in the level of diabetic foot ulcer among clients

H2- There is a significant difference in association between level of diabetic ulcer on papaya dressing with selected demographic variables

RESEARCH METHODOLOGY

Research approach - Quantitative research approach

STUDY DESIGN

Quantitative approach with quasi experimental (Time series Non equivalent control group design)

Experimental group O1 X O2 X O3X O4
Control group O1 --- O2---O3---O4

RESEARCH VARIABLES

Independent variable - Papaya dressing
Dependent variable - Foot ulcer of Diabetic patients.

SETTINGS OF THE STUDY

Patients with diabetic foot ulcer admitted in VMCH, Karaikal.

STUDY POPULATION

The study population consists adult between the age group of 40-70 years with Diabetic Foot Ulcer.

SAMPLE SIZE

The sample comprises of 200 adult clients.(100clients in control and 100 in experimental group)

SAMPLING TECHNIQUE

Purposive sampling Technique

INCLUSION CRITERIA

- 1) The diabetic clients those who are in the age group of 40 to70 years.
- 2) The patient with have diabetic foot ulcer exposed up to subcutaneous tissue(Grade1)
- 3) The diabetic foot ulcer clients who are willing to participate in the study.
- 4) The diabetic foot ulcer client in both gender.
- 5) The diabetic foot ulcer clients those who are type I or type II diabetics.

Wagners ulcer grade

Grade I: Superficial ulcers **Grade II:** Deep ulcers up to subcutaneous tissue exposing soft tissue or bone **Grade III:** Abscess formation underneath /osteomyelitis. **Grade IV:** Gangrene of part of tissue / limb / foot

EXCLUSION CRITERIA

- 1) Diabetic clients who are allergic to papaya.
- 2) The clients those who are having foot ulcer exposed up to muscle and bone.

V. DATA COLLECTION PROCEDURE

Pre intervention assessment will be done for diabetic foot ulcer clients for both groups. Papaya dressing will be applied for experimental group once a day for every day. Wound cleaned with normal saline. Then unripe papaya Epicarb (Inner portion) thin slice will be applied. Sterile dressing applied over the papaya. Post intervention assessment will done 15th day, 30th day 2nd month and 3rd month.

For the control group pre intervention assessment will done. 50 sample will taken, routine care will give for this group. Post assessment was done 15th day, 30th day 2nd month and 3rd month.

Post intervention assessment will done for both experimental and control group. Wound healing assessment observation will recorded using the Wagner wound assessment scale

VI. RESULT AND DISCUSSION

- Duration of illness less than one year 2(6.6%) 1-5 years 18(60%) 6-10 years 8(26.7%) and above ten years 2(6.7%).
- Regarding family history of diabetes 10(33.3%) of the family members had with diabetes mellitus, 20(6.7%) of them not having any family history of diabetes mellitus.
- 12(40%) of them have the habit of checking the feet and 18(66%) of them not have the habit to check the feet.
- 13(43.3%) of them have adequate knowledge. 16(53.3%) of them have moderate knowledge and 1(3.5%) having poor knowledge regarding diabetic foot care.
- Chi-square test revealed that there was significant association between age, source of information and knowledge regarding diabetic foot care among diabetic patients.
- There is no significant association between education status, gender and knowledge regarding diabetic foot care among diabetic patients.
- Chi-square test revealed that there was no significant association between duration of illness, family history of diabetes mellitus regarding diabetic foot care among diabetic patients.

VII. RECOMMENDATIONS

- Similar study can be under taken on larger samples.
- Study can be conducted as a comparative study among diabetic patients in different hospitals
- A study may be conducted as an experimental study between control and experimental group.

VIII. SUMMARY

The papaya fruit is easily available everywhere including the rural and urban areas. It provides favorable results in patients with diabetic foot ulcer by reducing duration of healing and surgical interventions due to the enzymatic micro-debridement; it also has wound healing property and is cost effective in the management of diabetic foot ulcer.

REFERENCES

- [1] Brunner and suddarth's, Suzzanne C Smeltzer, Brenda Bare. Textbook of *Medical surgical Nursing* , Lippincot Publication, 10th edition: 65,273

- [2] Diabetes, available at <http://www.whoindia.org/Scn/AssBOD/06 diabetes.pdf>
- [3] International diabetes federation(IDF)2005, diabetes available at <http://www.idf.Org>
- [4] Diabetes. <http://www.whoindia.org>
- [5] Zagar AH et al .mortality in diabetes mellitus data from developing region of the world, *Diabetes research in clinical practice*, 1999;43:67-74
- [6] Ramachandran. Specific problems of the diabetic foot In developing countries. *Diabetes metabolic research Rev*, 2004. Mar-june; 20 suppl 1: S19-22
- [7] Diabetes,who (2006) available at <http://www.whoFootcare.com>
- [8] World diabetes day(2005), diabetes and foot care available at <http://www.worlddiabetesday.org/>
- [9] Shawn is et al. A diabetes foot clinic. *Journal of diabetes Nursing*(1988):75-80.