

**Role of saline moist dressings in the treatment of diabetic foot ulcers****Mohammad Omar Shah<sup>1\*</sup>, MS Moosabba<sup>2</sup>, Huzaifa Nazir Tak<sup>3</sup>**<sup>1</sup>Senior Resident, Department of Surgical Gastroenterology, Sher-I-Kashmir Institute of Medical Sciences

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Received: 03-03-2021 / Revised: 22-03-2021 / Accepted: 04-04-2021

**Abstract**

**Background and objective:** Diabetes associated problems are the second most common cause of lower limb amputations in India. Majority of amputations are preceded by foot ulcerations. In view of the above said it is necessary to identify those at an increased risk of diabetic foot and therefore we conducted a study which planned to study the role of saline moist dressings in the treatment of diabetic foot ulcers. **Materials and methods:** This prospective non-randomized control study was conducted at Yenepoya Medical College Hospital on patients with diagnosed diabetic foot who were chosen by purposive sampling from October 2012 to September 2014. A total of 75 patients were chosen for the study and after taking an informed verbal consent were divided into the test group which received saline moist dressings daily and the control group who received the betadine dressings daily. Both the groups received additional treatments in the form of debridements, amputations as and when necessary. **Results:** Majority of the patients receiving treatment for diabetic foot were males. The average duration of diabetes mellitus observed was for 5-10 years. Our study also revealed that neuropathy was the most common complication associated with diabetic foot. In this study we found that in saline dressings, the cultures mostly revealed mono microbial etiology but the conventional dressings had multiple organisms in their cultures. Saline dressings reduced the need for amputations significantly in comparison to the conventional betadine dressings. **Conclusion:** We strongly recommended saline dressings for treatment of diabetic foot than betadine dressing.

**Keywords:** Diabetic foot, Amputation, Dressing, Saline, Betadine

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**Introduction**

There is a steady increase in the incidence of chronic diseases like diabetes and the maximum numbers of cases are in developing countries and India is considered as the "Diabetic Capital of the World." [1]. Diabetic foot is the most common complication as compared to all the other complications put together and is associated with significant morbidity, mortality, social, psychological & financial burden for the patient and the family. Diabetes associated problems are the second most common cause of lower limb amputations in India. Majority of amputations are preceded by foot ulcerations [2-4]. In view of the above said it is necessary to identify those at an increased risk of diabetic foot and therefore we conducted a study which planned to study the role of saline moist dressings in the treatment of diabetic foot ulcers.

**Material and method**

This prospective non-randomized control study was conducted at Yenepoya Medical College Hospital on patients diagnosed with diabetic foot ulcers who were chosen by purposive sampling between October 2012 to September 2014 for a period of 15 months. The subjects were recruited according to the following inclusion and exclusion criteria:

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E-mail: [79.omar@gmail.com](mailto:79.omar@gmail.com)**Inclusion criteria**

All patients of Diabetic foot - including both due to neuropathic and vascular causes attending to YMCH Department of General Surgery.

**Exclusion criteria**

Diabetic foot associated with Venous ulcers and Lymphedema

The patients who met the pre-defined criteria were then processed as follows:

- Informed consent.
- Proper history taking with emphasis on diabetic history.
- General and local examination.
- Routine investigations to be done besides Arterial Doppler in every case.
- Treatment modality to be selected based on severity of diabetic foot.
- Dressings were saline/iodine based wherever required.

Recruited subjects were divided into test (saline dressings) and control (betadine dressing) group. Test and control group comprised of 38 and 37 subjects respectively.

**Statistical analysis**

Data was analyzed using SPSS software version 20.

**Results**

Majority of the patients receiving treatment for diabetic foot were males while females accounted for only 23% indicating a marked difference on basis of the gender (Fig 1). In our study most of the patients belonged to the age group 41-60 years.

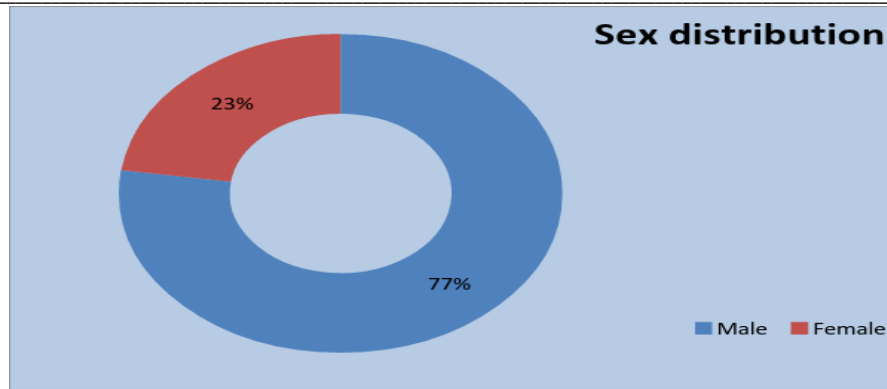


Fig 1: Gender distribution among the study subjects

Table 2: Side and site of lesion

Side	N	%
Bilateral	3	4.00
Left	34	45.33
Right	38	50.67
Site		
Foot	50	66.67
Medial Malleoli	4	5.33
Leg	1	1.33
Heel	2	2.67
Toe	16	21.33
Web	2	2.67

In our study right side was most commonly involved than the left side. Both lower limbs were involved in 4% of cases (table 2).

Table 3: Culture and sensitivity of the ulcer discharge

Culture	N	%
Monomicrobial	59	78.67
Polymicrobial	16	21.33

In our study we found that in saline dressings the Cultures mostly revealed mono microbial etiology but the conventional dressings had multiple organisms in their cultures (table 3).From Fig 2, it is evident that saline dressings reduced the need for amputations significantly in comparison to the conventional betadine dressings.

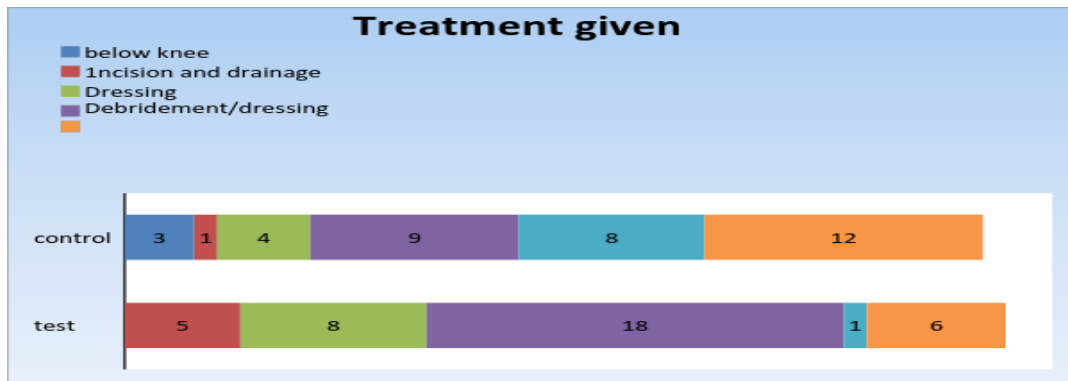


Fig 2: Treatment modalities among the test and control group

**Discussion**

With the increase in life expectancy, better health care facilities and awareness of the people there is a shift of the trend in diseases from infectious epidemics to non-infectious and chronic disease. Diabetes mellitus is a chronic disease whose prevalence is continuously on the rise and also the complications associated with it. Diabetic foot is one such debilitating complication of diabetes which poses a problem in terms of financial burden and social responsibility[5].In our study, diabetic foot was dominated by males which is comparable with the

following studies. A similar tendency was reported by Bansal et al[6] ,Aiping Wang et al[7], NimaMadanchi et al[8], Safaa Ali Khudhair [9] and Ali et al[10].Most of the patients in our study belong to age group 41-60 years which is comparable with the studies done by Bansal et al[6]and Ali et al[10].In our study most patients had poor glycemic control at admission,which is comparable with the following studies

**Table 2: Different studies**

Poor	Study
70%	Ali et al[10]
85.6%	Nima Madanchi et al[8]
79%	<b>Our study</b>

In a study by Safaa Ali Khudhair<sup>9</sup>, they concluded that the control and duration of diabetes mellitus are the major predictors of long term diabetic complications which is similar to our study. In our study gram positive organisms were more commonly isolated in the Gram-positive bacteria staphylococcus aureus was the most common organism colonizing the ulcers in diabetic foot. In a study by Abd Al-Hamead Hefniet al[11], gram-negative bacteria (67%) were more commonly isolated compared with Gram-positive bacteria (30%). In the Gram-positive bacteria staphylococcus aureus 10.2% was the most common organism and most common Gram-negative organisms was Pseudomonas aeruginosa colonization in the diabetic foot ulcers. In our study most patients were treated without amputation only by conservative method and the diabetic foot showed tendency towards healing. Ali and co-workers[10] in their study showed that most patients with diabetic foot can be treated conservatively. In a study by Sharad Pendsey[12], 3.43% required major amputation, and 16.41% needed minor amputation, rest were treated conservatively.

The limitations of this study were:

- a. As tertiary care centre the cases don't represent the actual burden and type in the population at study.
- b. The short sample size in comparison to the disease burden in the society.
- c. The short duration of study as compared to the chronicity of the disease

**Conclusion**

We strongly recommended saline dressings for treatment of diabetic foot than betadine dressing as in our study we found that there is a statistically significant reduction in the need for amputations in moist saline dressings.

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**Conflict of Interest: Nil**

**Source of support: Nil**

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