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AN OBSERVATIONAL STUDY ON THE PREVALENCE OF FOOT ULCER AMONG DIABETIC PATIENTS AND THE EXTEND OF FOOT CARE TAKEN BY THEM

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ABSTRACT

Background: Diabetes mellitus is a long term metabolic disorder characterised by high blood sugar, lack of insulin or insulin resistance. Even though there are many complications affecting the person with diabetes, none are more devastating than those complications involving the foot. Diabetic foot lesions have significant health and socioeconomic problems holding adverse effects on quality of life of the patients and imposing a heavy economic burden on the patients. Foot ulcers significantly contribute to morbidity and mortality of patients with diabetes mellitus. The diabetic patients with foot ulcers require long term hospitalization and carry the risk of limb amputation. **Methodology:** The study was carried out among 250 diabetic patients in the area around Thiruvananthapuram, South Kerala. The study was a prospective observational study carried out for a period of 1 month. Simple random sampling method was used. Data was collected from diabetic patients of age between 30 and 70 years. Pregnant and bedridden patients are excluded from the study. Data was collected using a structured questionnaire, both web based and document based. It includes patient demographic details, co-morbidities, duration of DM, recent foot infections and awareness among them about foot care measures. The responses were analysed statistically. **Result:** A total of 250 diabetic patients were approached to participate in the study. Out of which 108 patients (43%) were reported to have diabetic foot ulcer. About 38% of the subjects were currently taking clinical care for foot ulcer. About 162(64%) subjects were practicing proper

foot care measures and 55% of them were practicing regular foot examination. 48% of the subjects adopt massaging of the foot before going to bed, 23% adopt to wear clean socks, 18% were aware of the chappals that can be worn and 22% practice the habit of cleaning foot with lotions. **Conclusion:** The prevalence of diabetic foot ulcer was found to be high among elderly diabetic patients. Majority of the subjects were found to adopt self-care measures like massaging, wearing socks, cleaning foot with lotions etc. The health care providers are recommended to provide proper counselling to the patients about diabetic foot self-care measures, and importance of regular foot examination for the prevention of diabetic foot complications.

INTRODUCTION

Diabetic mellitus is a long term metabolic disorder characterised by high blood sugar, insulin deficiency, insulin resistance or both. The incidence of diabetes is increasing worldwide; by 2030, it will grow up to 366 million.[1] The risk factors that can lead to diabetes include obesity, increase in age, family history of diabetes, high blood pressure etc.

Even though diabetes have many complications, the more common complication of poorly controlled diabetes are foot ulcers, forming as a result of skin tissue breaking down and exposing the layers underneath. Most commonly foot lesions occur under the big toes and bails of the feet. Foot ulcers are one of the long term complications of diabetes mellitus with the life time risk up to 25%. In developed countries, one in every six peoples with diabetes will have an ulcer during their lifetime.[2] The risk is even higher in developing countries. Foot ulcers significantly contribute to morbidity and mortality of patients with diabetes mellitus.

The major risk factors associated with foot ulcers include poorly fitted or poor quality shoes, poor hygiene, improper trimming of toenails, alcohol consumption, obesity, tobacco use etc.[3] Manifestations of complication range from simple to highly complex including limb amputation and life threatening infections.[4]

Diabetic foot ulcers are mainly caused by: (1) poor circulation, (2) hyperglycaemia, (3) nerve damage, (4) irritated or wounded feet. Poor circulation is a form of vascular disease in which blood doesn’t flow to the feet efficiently, make it more difficulty for the ulcers to heal. High blood sugar level can also slow down the process of healing.[5] Nerve damage reduces the sensitivity to pain and results in painless wounds that can cause ulcers.

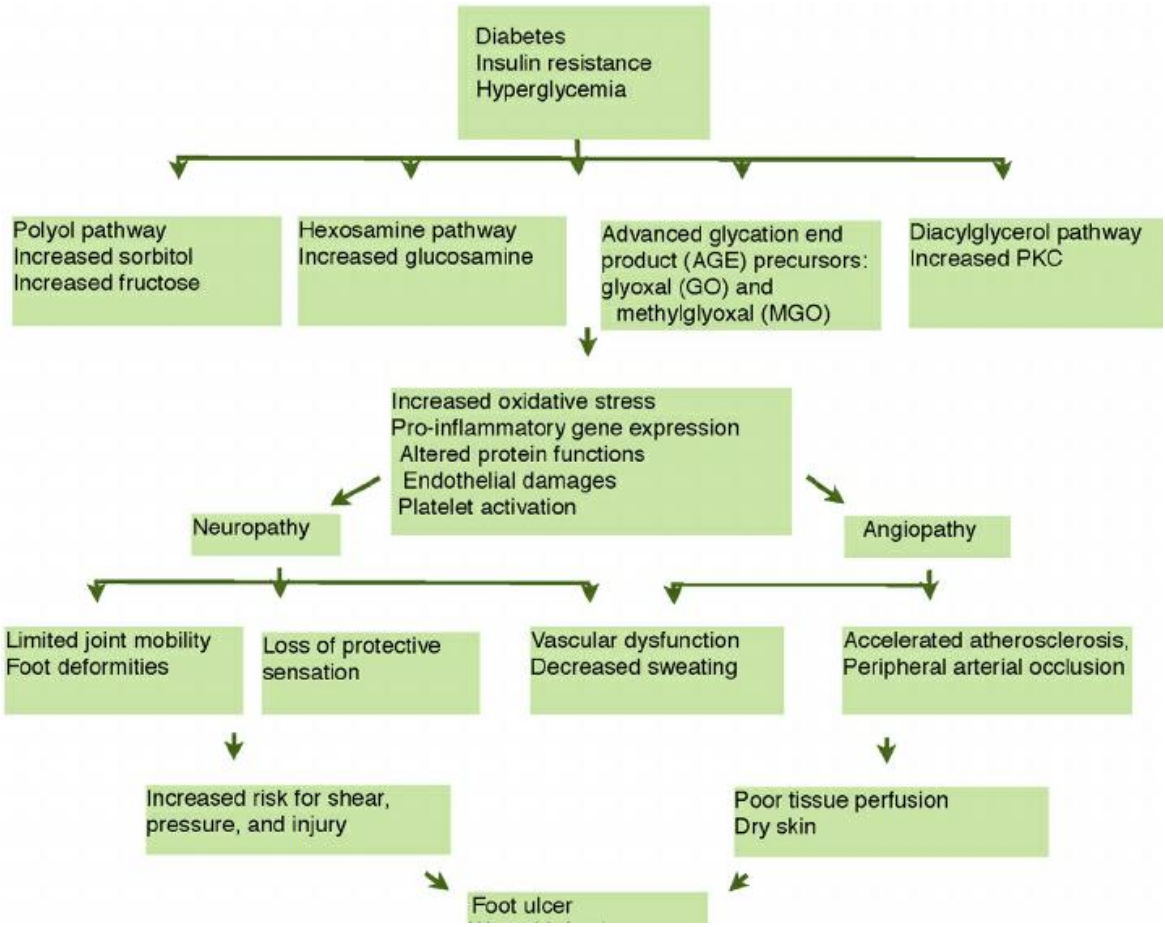


Figure 1: Pathogenesis of diabetic foot ulcer.

The clinical features of the foot ulcers include drainage from foot, unusual swelling, redness, odors from feet etc. the most viable sign of serious foot ulcer is black tissue (Escher) surrounding the ulcer.[6] Partial or complete gangrene are also the signs of serious ulcer.

This most devastating complication of diabetes can be better controlled to an extent by proper foot care measures. These foot care measures include: washing your feet every day, keep toenails adequately trimmed, keep the feet dry and moisturized, changing socks frequently, wearing proper fitting shoes etc.[7] This study focuses on finding the prevalence of foot ulcer among diabetic patients and the extend of foot care taken by them.

MATERIALS AND METHOD

The study was carried out among 250 diabetic patients in the area around Thiruvananthapuram, South Kerala. The study was a prospective observational study carried out for a period of 1 month. Simple random sampling method was used. Data was collected from diabetic patients of age between 30 and 70 years. Pregnant and bedridden patients are

excluded from the study. Data was collected using a structured questionnaire, both web based and document based.

The study includes patient demographic details, co-morbidities, family history, duration of DM, history of foot infection, recent foot infections, clinical care taken, ongoing clinical care, any natural foot care measures taken by them, and awareness among them about foot care measures like wearing clean socks, massaging foot at bedtime, cleaning the foot with lotions, aware of chappals that can be worn etc. The responses were analysed statistically. This study helps in concluding the prevalence of foot ulcer in diabetic patients and the extend of foot care taken by them.

RESULTS

A total of 250 diabetic patients were approached to participate in the study. Out of which 108 patients (43%) were reported to have diabetic foot ulcer. About 67 subjects (26.8%) have a history of diabetes foot ulcer. About 95 patients (38%) of the subjects were currently taking clinical care for foot ulcer. From the total subjects, 162 subjects (64.8%) had a past medical history including hypertension, dyslipidaemia, stroke etc. About 33% had a family history of diabetes mellitus.

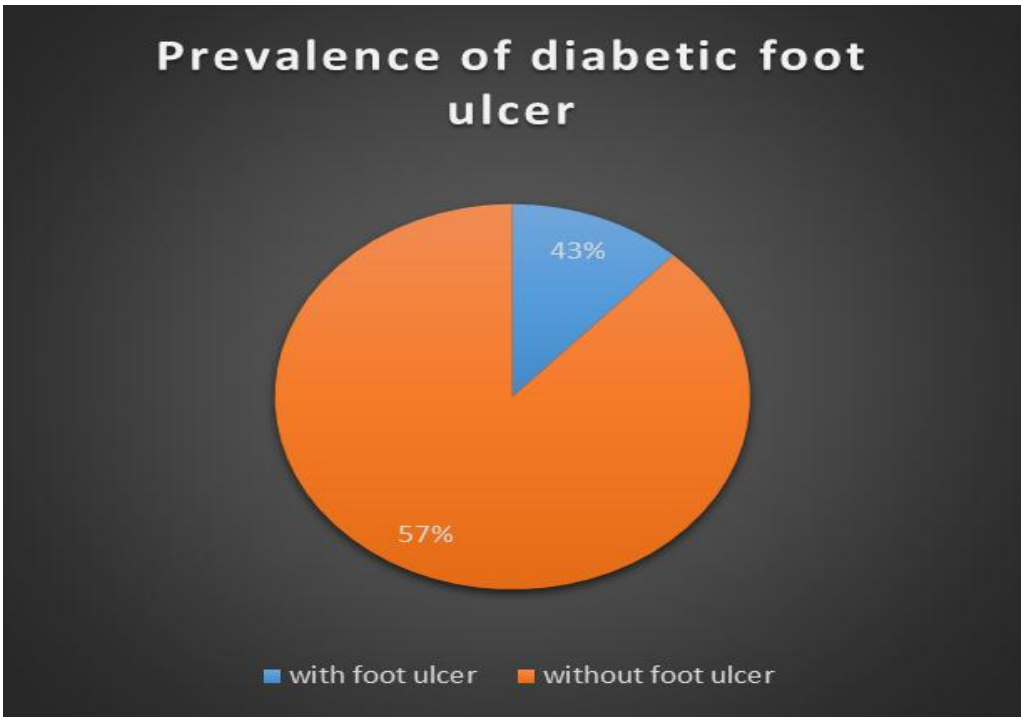
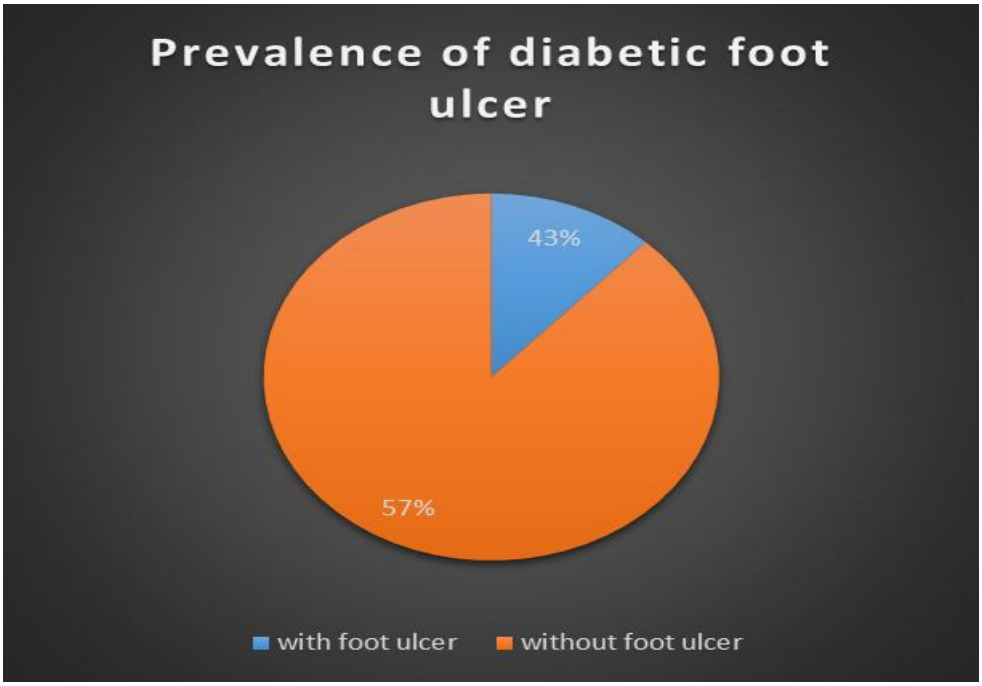


Figure 2: prevalence of diabetic foot ulcer.

About 162(64%) subjects were practicing proper foot care measures and 137(55%) of them were practicing regular foot examination. A number of 120 subjects (48%) adopt massaging of the foot before going to bed, 57 subjects (23%) adopt to wear clean socks, 45 subjects (18%) were aware of the chappals that can be worn and 55 subjects (22%) practice the habit of cleaning foot with lotions. As per the study, patients with foot ulcer are also practicing certain natural foot care measures. About 47 patients (18%) were washing their foot regularly with little hot water and about 39 patients (15.6%) were practicing the habit of cleaning the foot with salt water.



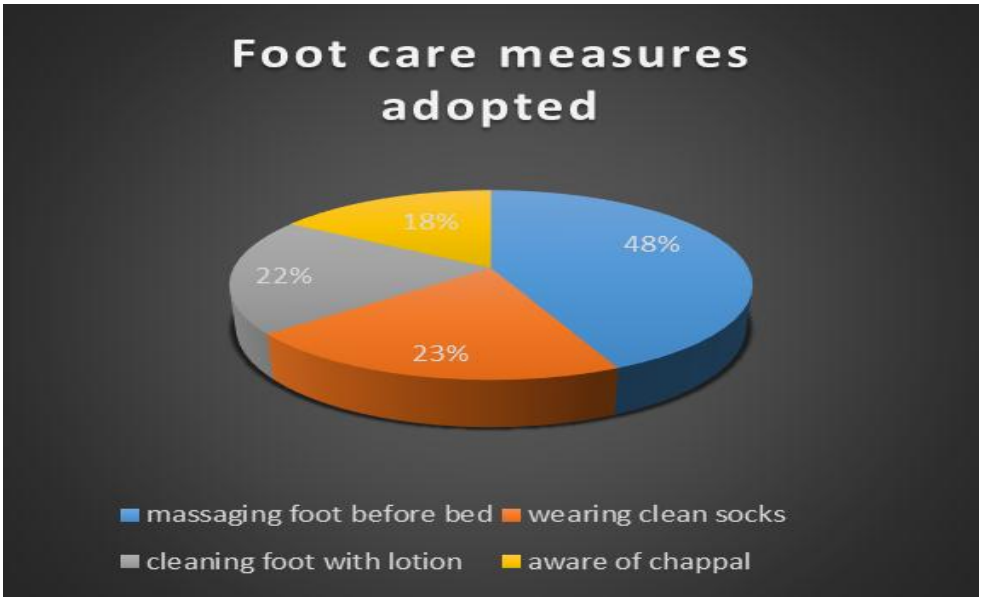


Figure 3: Foot care measures adopted.

Previous studies suggest that about 40-60% of the diabetic patients had been reported with the complication of foot ulcer.[8] The results from this study also tie up with the former studies i.e., about 43% of the patients are having foot ulcer and about 38% of the patients were taking clinical care. According to the previous studies the awareness of the patients about diabetic foot care measures seems to be medium, and in this study 64% of the patients are aware of the foot care measures.

CONCLUSION

The prevalence of diabetic foot ulcer was found to be high among elderly diabetic patients and majority were taking clinical care also. Many of the subjects are found to have comorbidities like hypertension, dyslipidaemia, stroke etc.

Majority of the subjects were found to adopt self-care measures like massaging, wearing socks, cleaning foot with lotions etc. A small portion of the patients were practicing natural foot care measures like washing the foot with hot water and salt water.

Thus we can conclude that the prevalence of foot ulcer is high in diabetic patients. Factors like increased age, family history of diabetes, presence of comorbidities etc influence the development of foot ulcers.[9] Awareness of foot care measure among the patients was found to be average. The practice of foot care measures shows considerable benefit in the prevention or control of foot ulcers.

The health care providers are recommended to provide proper counselling to the patients about diabetic foot self-care measures, and importance of regular foot examination for the prevention of diabetic foot complications.

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