

DIABETIC FOOT RISK CATEGORY ACCORDING TO INTERNATIONAL WORKING GROUP ON THE DIABETIC FOOT AMONG ADULT DIABETICS ATTENDING A TERTIARY HOSPITAL IN SOUTH-SOUTH NIGERIA

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Abstract

Introduction: Diabetic foot disease (DFD) constitutes a high public health burden and is a reason for hospital admission, amputation and death in persons living with diabetes mellitus. Therefore, a verified and suitable DFD classification that matches disease progression is crucial for accurate clinical diagnosis and management. This study's objectives were to determine the prevalence of DFD and the distribution of diabetic foot risk categories according to the International Working Group on the Diabetic Foot (IWGDF) risk stratification system.

Methods: This descriptive cross-sectional study employed a simple random sampling technique to recruit 365 respondents aged 18 years or older living with diabetes mellitus. A standardised questionnaire (including the National Association of Diabetes Centres Australasian Podiatry Council foot assessment checklist and the IWGDF diabetic foot risk profile grading chart) was utilised. Data analysis was done using the IBM SPSS version 23.0.0.

Results: The mean age of respondents was 58.35 years with S.D of 10.62 with a male to female ratio of approximately 1:1.5. Of the 365 respondents, 292 (80%) had foot disease, Using the IWGF classification, 26%, 46%, and 8% of the respondents were in category 1, 2 and 3, respectively.

Conclusion: The prevalence of diabetic foot disease among our patients was high, with more individuals classified as IWGDF diabetic foot disease category 2. This means more respondents with foot disease were at risk of getting ulcers and infections that may lead to amputation.

Keywords: Diabetes, Diabetic foot risk category, International Working Group on the Diabetic Foot, South-south Nigeria.

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INTRODUCTION

Diabetes mellitus (DM) is known to damage multiple organs, including the heart, kidneys, eyes, and nerves, leading to complications like cardiac arrest, cerebrovascular accident, blindness, chronic kidney disease, and lower limb amputation.¹ Diabetic foot disease (DFD), a known complication of DM^{2,3} occurs in approximately 6.3% of patients with DM globally.¹ The high rate of DFD and the associated mortality and morbidity are the most common reasons for hospitalisation of diabetes patients.^{1,4} Decreased productivity and high healthcare-related fees result from DFD. Effective treatment of diabetic foot ulcers requires timely diagnosis, classification, risk factor assessment, and patient-centred management strategies.¹

The Triad of Diabetic Foot Complications: neuropathy (causing trauma), peripheral arterial disease PAD (causing ischemia), and infection (driving inflammation) interact to promote DFD progression.⁵ Persons with DFD can experience tingling, burning, or pain in their feet; change in the colour and temperature of their feet, dry, cracked skin on their feet. Loss of feeling or ability to sense heat or cold; Thick, yellow toenails; Loss of hair on your toes, feet, and lower legs.⁶ Prevention of DF disease is important to minimise the complications to the patient and the consequent economic burden to society. Therefore, shifting the treatment focus from acute care to prevention is important. The first step of all preventive measures is population-based screening and early detection of at-risk feet for DF ulceration through risk classification and stratification.⁷

The International Working Group on the Diabetic Foot (IWGDF) risk stratification system is a helpful and effective tool with exactitude for recognising at-risk feet and forecasting poor outcomes.⁷ The IWGDF categorises diabetic foot risk using four groups: risk category (RC) 0 = normal foot with no neuropathy; RC 1 = loss of protective sensation; RC 2 = loss of protective sensation, deformity and peripheral arterial disease; and RC 3 = previous history of ulceration or amputation.⁸ The risk stratification also serves as a guide to assist managing clinicians in scheduling patient reviews annually or quarterly.⁸

The objectives of the study were to assess the prevalence of diabetic foot risk and to categorise the distribution of these risks according to the International Working Group on the Diabetic Foot (IWGDF) within our setting. The findings aim to enhance the existing evidence regarding diabetic foot risk among patients with diabetes in a tertiary hospital located in South-South Nigeria.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted in the Family Medicine clinic of Rivers State University Teaching Hospital (RSUTH). Data was collected using a simple random method. This study was carried out on adult diabetic patients who receive care at the Family Medicine Department of the Rivers State University Teaching Hospital.

The Leslie Kish formula for sample size calculation was used to calculate the sample size of 365 respondents for this study with Prevalence estimated at 38.7%⁹.

A questionnaire (which included the National Association of Diabetes Centres Australasian Podiatry Council foot assessment checklist and the IWGDF diabetic foot risk profile grading chart :0 - low risk, 1 - intermediate risk, 2 and 3- high risk) was used to collect data on the socio-demographic, diabetes related characteristics and assess the diabetic foot risk profile of the respondents. Prior to filling out the questionnaire, the study process was explained again to the respondents.

Data was analysed using the IBM Statistical Package for Social Sciences version 23.0. The level of significance was set at $p<0.05$.

Ethical approval was obtained from the Rivers State Hospital Management Board Ethical Committee and informed consent was obtained from each respondent before recruitment.

RESULTS

A total of 365 questionnaires were administered with a 100% response rate. Figure 1 shows that 80% of respondents had diabetic foot disease, with 46% of these in IWGDF class 2.

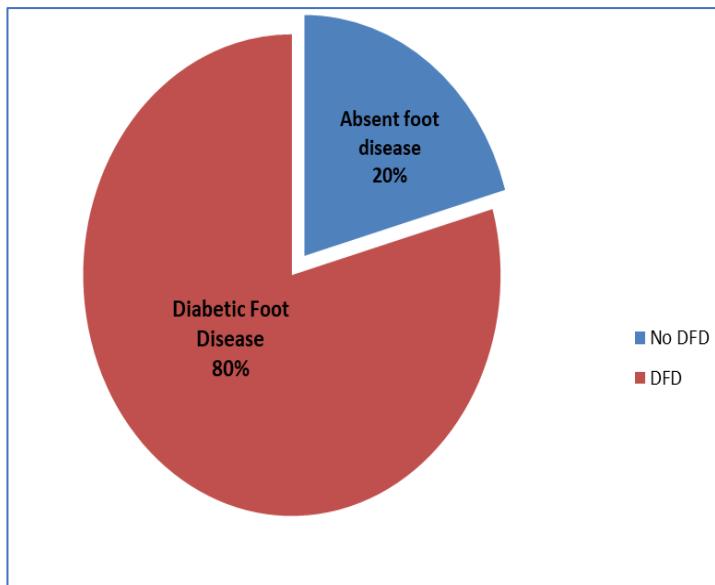


Figure 1: Prevalence of foot disease among respondents

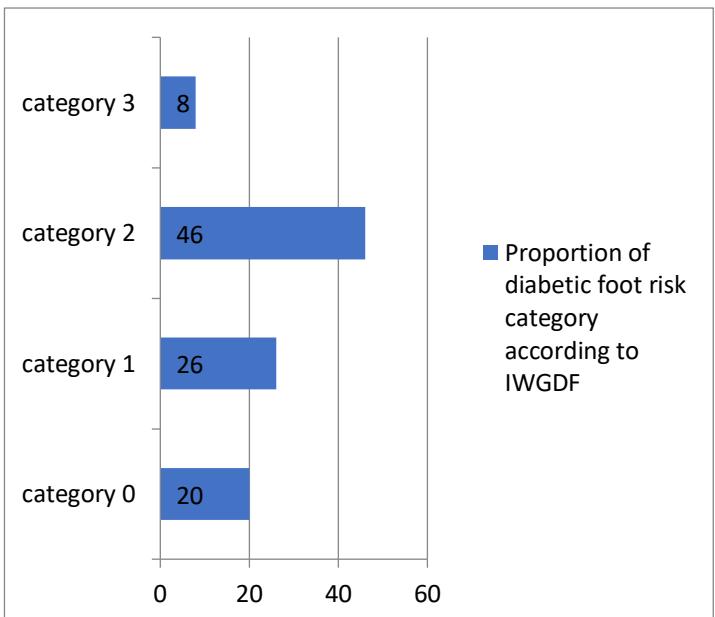


Figure 2: Proportion of diabetic foot risk category according to IWGDF

DISCUSSION

Diabetic foot (DF) disease is difficult to treat, but it is preventable. Preventive measures such as targeted screening are essential to identify patients at risk of DFD using risk-standardised classification and stratification tools.⁷ We report a very high prevalence of foot disease among patients living with DM in our setting. Our findings are comparable to those reported (93%) in the study by James and colleagues in Kenya.⁸ In contrast, Idowu and colleagues in Southwest, Nigeria, reported 64.9%¹⁰ and Banik et al, in Bangladesh reported a prevalence of 45%.¹¹ In a study in Pakistan, 67.5% was reported as the prevalence of DF disease.¹² Furthermore, much lower prevalences were reported by Abdissa et al, 11.6%,¹³ Maingi and colleagues in Kenya, 9%.¹⁴ The variation in the reported prevalence rates may have been due to the duration of the diabetic illness, study design and study site. Longer duration of diabetes mellitus, however, increases the risk of various complications associated with the disease, of which foot disease is a part.

The index study using the IWGF classification reported variations in the risk categories of the respondents. More respondents were in category 2 of the IWGDF classification. In contrast, Idowu and colleagues in Southwest, Nigeria, reported more respondents in category 1.¹⁰ The multicentre study by Banik et al, involving 1,200 Bangladeshi participants, reported DFD category 3 to have the highest risk prevalence of 28%. Variation from our findings may be attributed to a smaller sample size, study design, duration of illness, and time of follow-up and screening. In the study done in Pakistan, the results were as follows using the IWGDF Foot disease classification, 46 patients (39.3%) had risk category 1, 19 (16.2%) patients risk category 2 and 14 (12%) patients risk category 3.¹² This differ from the index study and the study by Banik et al, by reporting the most number of respondents as been in category 1.

The differences in the distribution of respondents using the IWGDF classification in the various studies could have been due to health-seeking behaviour of persons in the various localities, existing healthcare facilities in the various study locations, knowledge about foot self-care, study settings and the diagnostic method utilised.

CONCLUSION

The prevalence of diabetic foot disease noticed among the patients was high, with more patients in IWGDF diabetic foot disease classification category 2. This highlights the need for healthcare professionals and patients to be sensitised regarding the importance of foot screening to prevent lower-extremity complications. Healthcare professionals, providers and patients should be sensitised about the importance of foot screening to prevent lower-extremity complications

RECOMMENDATIONS

Foot care education and diabetic foot assessments should be done for all patients who present to tertiary centers in Port Harcourt and Nigeria to improve early detection and management to limit DFD progression and disabilities

LIMITATIONS OF STUDY

The findings in this study cannot be extrapolated to the general population. Since the study is a hospital-based cross-sectional study.

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AUTHOR'S CONTRIBUTION

All authors made contributions to various aspects (Conceptualisation, Methodology, Project administration, Writing – original draft, Writing – review & editing) of the research. All authors approved the final manuscript and take responsibility for the contents herein reported.

CONFLICT OF INTEREST

Nil

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