

Prevalence of Diabetic Foot Ulcer Admission; A Retrospective Study at the Rivers State University Teaching Hospital, Port Harcourt

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Abstract

Original Research Article

Background: Diabetes mellitus is a glucose metabolic disorder with major complications ranging from tissue damage to issues with internal organs. Its prevalence keeps increasing at a very alarming rate and so does its major complication, foot ulcer, which constitutes to both economic burden and human suffering. **Aims:** The study aimed to establish the prevalence of diabetic foot ulcer (DFU) hospitalised adult patients in Rivers State University Teaching Hospital, Port Harcourt, Nigeria. **Methods:** A retrospective study was conducted on all DFU patients admitted in the Medical ward at the Rivers State University Teaching Hospital, Port Harcourt, Nigeria. Study variables included age and gender in. Data was processed for the 96 DFU patients. **Result:** A total of 96 DFU diabetic patients were studied with Male to Female ratio of about 1:2. Prevalence of diabetes was 7.8% with more cases in women (64.4%) than in men (35.6%). The prevalence of diabetic foot ulcer in relation to age was highest in the age group 60 years and above. **Conclusion:** Prevalence of DFU is high in this study. Establishing educational programmes to provide information to patients on peripheral neuropathy will help with poor glycaemic control and practice of foot care as well as provide a cost-effective way of preventing ulcers, amputations and even death.

Keywords: Diabetic Foot, Retrospective, Rivers State.

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INTRODUCTION

The World Health Organisation defines Diabetes mellitus as a chronic disease that occurs when the pancreas is unable to produce enough insulin or when the body cannot effectively respond to the insulin it produces to regulate blood sugar levels (Diabetes, 2022). Increased blood sugar, hyperglycaemia, is a common result of uncontrolled diabetes and could lead to damages to the nerves and blood vessels over time. Diabetes mellitus is characterised by chronic hyperglycaemia (Desalu *et al.*, 2011). Diabetes prevalence, according to the latest facts and figures provided by the International Diabetes Federation (IDF), stated that approximately 537 million adults (20-79 years) are living with diabetes and the total number of people living with diabetes is projected to rise to 643 million by 2030 and 783 million by 2045 (diabetes, diabetes and figures, 2022). The developing economies of Africa constitute a significant fraction of this figures, as 1 in 22 adults (24 million) are living with diabetes and the total number of people with diabetes is

predicted to increase by 129% to 55 million by 2045. In addition, diabetes was responsible for approximately 416,000 deaths in 2021.

Major risk factors for the prevalence of Diabetes mellitus include family history of Diabetes Mellitus, urban dwelling, unhealthy dietary habits, cigarette smoking, older age, physical inactivity, and obesity (Uloko *et al.*, 2018).

In recent reports, Nigeria, which is the most populous country in Africa, suffers a greater burden from diabetes within the Sub-Saharan sub-continent (Ugwu *et al.*, 2019). This increase in prevalence of diabetes in Nigeria has been blamed on an ever-changing demographic dynamic which could include increased urbanisation, adoption of unhealthy and sedentary lifestyles. Therefore, to parallel this increase, there has also been an increase in the prevalence of diabetes-related complications and death. Complications that affect the lower extremities leading

tolower extremity morbidity are a major issue to affect individuals and cost healthcare systems (cook jj). Among diabetic-related complications, one of the most catastrophic is diabetic foot ulcer (DFU). Diabetic foot ulcers (DFU) are non-traumatic lesions and accounts for majority of non-traumatic amputations performed in most Nigerian tertiary hospitals (Danmusa, Terhile and Nasir, 2016).

METHODOLOGY

Study Area

It was a retrospective study that was carried out at the Rivers State University Teaching Hospital (RSUTH). RSUTH, formerly Braithwaite Memorial Specialist Hospital (BMSH), a government owned hospital located in Old GRA, Port Harcourt, Rivers State. It is a 375 bed capacity hospital. The period studied was between 2020 to 2021.

Analysis of DFU Prevalence

Medical Records of all patients who were admitted at the medical ward of RSUTH and diagnosed with Diabetic Foot Ulcer were reviewed and variables considered included gender, age, admission duration and clinical presentation.

Ethical Clearance

The protocol of this study was approved by the ethical research committee of Rivers State University Teaching Hospital.

STATISTICAL ANALYSIS

Using statistical package for social sciences (SPSS), a systematic analysis was carried out on this data. A two-sided $p < 0.05$ at 95% confidence interval (CI) was considered statistically significant for t-test to determine the statistical association between each variable.

RESULTS

The total number of admission in the medical wards was 1,231 (645 females, 586 males), out of which 96 patients were diagnosed with DFU giving a prevalence of 7.8%. Of the total DFU population, 36 (35.6%) were male and 65 (64.4%) were female as shown in Table 1 below.

Table-1: Gender distribution of dfu admission

Gender	Gender/sex
Male	35.6%
Female	64.4%

Table-2: Age distribution of dfu admission

Age group	Percentage
18-29 YEARS	0
30-39 YEARS	1
40-49 YEARS	23
50-59 YEARS	28
60-69 YEARS	21
≥70 YEARS	23

Table-3: Duration of dfu admission

Duration	Percentage
< 1 WEEK	22,5
1-2 WEEKS	20
2-4 WEEKS	25
>4WEEKS	32.5

DISCUSSION

Diabetes Mellitus ulcer complications are responsible for a rise in the morbidity and mortality across the world, most especially in African countries. It is responsible for more hospitalizations than any other complication of diabetes taking the greatest toll on the family (Anumah *et al.*, 2022). Foot ulceration in diabetic patients is therefore a medical, economic and psychosocial issue requiring serious attention.

Diabetic foot ulcer still remains a major complication of diabetes mellitus as this study shows that the prevalence of diabetes in total number of patients admitted into the wards was 7.8% with more cases in women (64.4%) than in men (35.6%). A previous study noted that the global diabetic foot ulcer prevalence was 6.3% (95%CI: 5.4-7.3%) among diabetic patients (Zhang *et al.*, 2016) with the prevalence in Africa being 7.2% (95%CI: 5.1-9.3%) similar to the finding in this study. The major difference in both studies would be a variation in sample size, race and age of study participants.

The burden of DFU in Nigeria has been reportedly high, with prevalence rates ranging from 11%-32% among hospitalized patients which is higher than in this present study (Ogbera AO, Fasanmade O, Ohwovoriolae AE, Adediran O 2006). The difference may be associated to the fact that this present study is a retrospective study and may not have had large sample size.

The high prevalence of DFU admission in this present study further buttresses the need for early diabetes education and the need for foot care education to people suffering from diabetes, it is an easy and cost-effective way of preventing ulcers, amputations and even death. Diabetes foot care education program caused 77% of diagnosed patients to seek hospital care as first option, rather than herbal medication, and amputation rate decreased from 50% in 2009 to 10% by 2017 (Anumah *et al.*, 2020). Foot care education has a positive impact on DFU clinical outcomes and it is necessary to provide foot care education to patients (Innocent *et al.*, 2019).

The present study showed increasing prevalence of diabetic foot ulcer with increasing age and highest in the age group 60 years and above while none was recorded in the age group of 18 – 29 years. This is in line with findings of other studies (Kharroubi, 2015) (Macfarlane and Jeffcoate, 1997). Although this present study showed an even greater occurrence of

DFU in age groups >50 years, this may be due to prolonged duration of diabetes and perhaps inadequate glycaemic control.

CONCLUSION

This study reveals a high prevalence of DFU admission at the Rivers State University Teaching Hospital, Port Harcourt and should serve as a wakeup call to healthcare professionals, clinicians and nurses to establish educational programmes that will provide information to patients on peripheral neuropathy with regards to poor glycaemic control and practice of foot care in Rivers State.

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