



Prevalence of Diabetic Foot Ulcers Among patients in Babylon, Iraq

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Abstract: Background: Diabetes Mellitus is defined as an endocrine progressive disease, characterized by either absence of insulin or lack of the response to the action of insulin by the peripheral tissue. It needs an intensive monitoring and control for level of glucose in the blood or it would progress to dangerous micro- and macro- complications. **Aim:** assess the prevalence of diabetic foot ulcers among diabetic patients in Babylon, Iraq and its relationship to patient's sociodemographic and living properties. The variables encompassed in this study consist of education level, gender, age, area of residence, marital status, monthly family income, body mass index (BMI), day of walk-in, smoking habits, presence of hypertension, family history of foot ulcers, and duration of diabetes. **Method:** the data has been collected from hospitalized patients or those who come to the hospital to reveal their pathological condition by asking the patient directly or indirectly by asking an accompanying relative several questions using a specific questionnaires form. **Results:** The Diabetic Foot Ulcers (DFUs) was in males more than in females, and nearly half of patients were overweight. There were non-significant differences between hypertensive and non-hypertensive individuals, and family history of diabetic foot ulcer. Meanwhile, there was a substantial difference in the, smoking, and duration of diabetes among study population. **Conclusion:** Diabetic foot ulcer is a serious complication of diabetic disease and it is more common among diabetic patients who are overweight, smokers, unable to walk, uneducated, poor, urban and those with family history of diabetic foot ulcers so the findings reveal that foot ulcers in diabetic patients become a main health problem, so that better approaches and preventive measures should be done to deal with the epidemic.

Key Words: Diabetic foot ulcer, body mass index, hypertension, diabetes mellitus, smoking

I. INTRODUCTION

Diabetes is characterized as a collection of metabolic disorders characterized by elevated levels of glucose in the bloodstream, which arise from impairments in the secretion or action of insulin, or both. There exists a correlation between individuals diagnosed with diabetes who experience persistent elevated blood glucose levels and the occurrence of enduring harm, impaired functionality, and eventual organ failure in multiple bodily systems, notably the eyes, kidneys, nerves, heart, and blood vessels [1]. Classes of diabetes include type 1 which is characterized by body's inability to produce insulin because of the autoimmune destruction to the beta-cell of pancreas. Onset commonly take place in childhood, but can occur in adults in early 40year and late 30year, while Type 2 consists of a group of dysfunctions recognized by hyperglycemia and this result from the combination of inadequate insulin secretion, resistance to insulin action, and inappropriate or excessive glucagon secretion [2]. There exists a third category of diabetes known as Maturity Onset Diabetes of the Young (MODY), which is characterized by genetic abnormalities affecting the functionality of β -cells.

and fourth type called gestational diabetes mellitus, diabetes diagnosed in the second or third trimester of pregnancy that is not clearly overt diabetes [3].

Foot ulcers in diabetic patients are a prevalent manifestation that typically occurs on the soles of the feet in individuals afflicted with diabetes mellitus. These ulcers arise due to peripheral arterial disease or peripheral neuropathy, affecting all layers of the skin and resulting in inflammation or necrosis. It is estimated that approximately 15% to 25% of individuals with diabetes will experience foot ulcers at some point in their lives, making it a significant contributor to non-traumatic amputations on a global scale [4].

II. PATIENTS AND METHODS

This is a cross sectional study carried out from November 2022 to March 2023A randomized sample of 100 diabetic patients was selected from patients attending the Marjan Teaching Hospital - Diabetes Center, Imam Al-Sadiq Teaching Hospital and Al-Hashimya General Hospital - Diabetic Foot Care Unit.

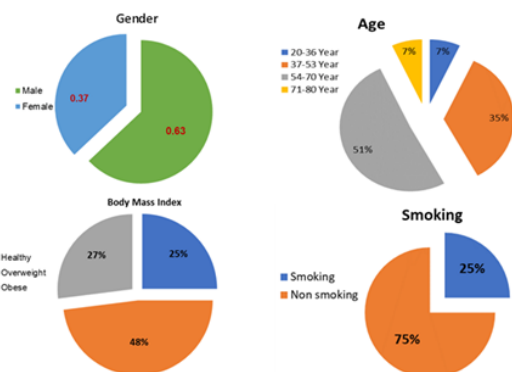


FIGURE 1: Characteristics features among study population

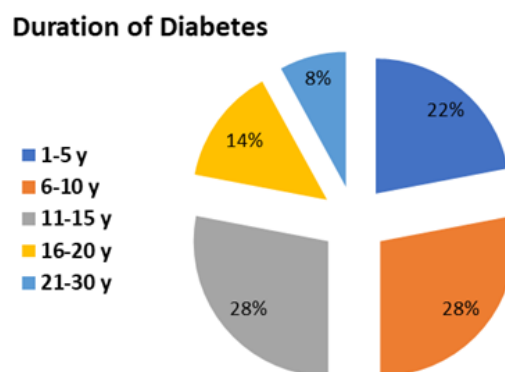


FIGURE 2: Classification of study population according to the duration of diabetes

A. DATA COLLECTIONS

The data was collected from hospitalized patients and those who visited the hospital to disclose their pathological condition. This was done by directly asking the patient or indirectly by asking accompanying relatives several questions about their living characteristics and sociodemographic information. The study includes variables such as gender, age, body mass index (BMI), smoking habits, presence of hypertension, duration of diabetes, and family history of foot ulcers.

B. STATISTICAL ANALYSIS

Statistical analysis was done by using SPSS. Statistical advice was taken from an expert for the test used. Paired-sample Student's t-tests were utilized to compare differences within each variable. The statistical technique of analysis of variance (ANOVA) was utilized to compare multiple research populations. Subsequently, post-hoc tests were conducted using the least significant difference (LSD) approach to further examine the differences between these groups. Microsoft Excel 2010 is also utilized. In all tests, a significance level of $P < 0.05$ was deemed to indicate statistical significance.

III. RESULTS

A. CHARACTERISTICS OF PATIENTS

The current study shows the prevalence of diabetic foot ulcer in male as compared with female (63% vs 37%), also we found that significant difference in age group 54-70 year (51% vs 35%, 7%, 7%), overweight patients (48% vs 25%, 27%), smoking patients (75% vs 25%) as compared with others groups as shown in Figure 1.

B. DISEASES FEATURES

There were non-significant differences ($p > 0.05$) between hypertensive and non-hypertensive patients, family history of diabetic foot ulcer, while there was a significant difference ($p < 0.05$) when compared the duration of DM, however, patients who have 6-15 years showed higher duration with compared with 1-5 years, 16-20 years, and 21-30 years as shown in Figure 2.

IV. DISCUSSION

The prevalence of foot ulcers in diabetic males was found to be 63% of the study population, whereas it was 37% in females, as reported in Figure 1. This finding aligns with a study published in the International Wound Journal, which reported that males with diabetes were 3.4 times more likely to develop diabetic foot ulcers compared to females [5]. Our suggestion that male patients, frequently engaged in agricultural or manual labor occupations situated at a considerable distance from their residences, are compelled to endure prolonged periods of standing, often while wearing ill-fitting or excessively constrictive footwear. These circumstances subject their feet to heightened pressure. Conversely, females tend to spend a majority of their time indoors, either within domestic settings, commercial establishments, or office environments. Consequently, they experience comparatively less strain on their feet, as they are afforded the opportunity to sit and rest for longer durations [6]–[8].

The result of present study shows significant difference in age group (54-70 year) that has 51% of our study population as compared with age groups 20-36 year was 7% and 71-80-year age group was also 7% and non-significant difference as compared with age groups 37-53 year that was 35%. Also, there was a significant difference in age group (37-53 year) as compared with age groups (20-36 year, 71-80 year). This finding is similar with a study in Journal of Diabetes & Metabolic Disorders, which states that majority of the diabetic patients who developed diabetic foot were in their sixth and fifth decades of their life, with mean age of 59.3 years [9]–[11].

We noticed that an overweight patient 48% as compared with healthy 25% and obese patients 27%. This finding is relatively similar to other study in Punjab, Pakistan [12] which says that diabetic patients with overweight were approximately 2.5 times more commonly to have foot ulcers when compared with normal weight diabetic patients.

V. CONCLUSION

The current study's findings indicate a notable prevalence of diabetic foot ulcers in Babylon, highlighting the ur-

gency for prompt implementation of preventive measures. The management of diabetic foot ulcers necessitates focused interventions and substantial endeavors in order to prevent their occurrence, facilitate early detection, effectively control diabetes, and modify the associated risk factors. The significance of awareness programs and people-based screening efforts for foot ulceration in diabetic patients should not be overlooked. Undoubtedly, these activities will contribute significantly to the alleviation of the disease's impact. The findings will aid in comprehending the impact of risk factors on the occurrence of foot ulcers in the specified region. Therefore, further investigation is necessary to establish the correlation between these risk variables.

CONFLICTS OF INTEREST

No conflicts of interest have been declared by the authors.

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