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Comprehensive Characterization of Diabetic Foot Ulcer Epidemiology, Dar es Salaam, Tanzania.

[1,2]Zulfiqarali G. Abbas, [1]Janet K. Lutale, and [3]Lennox K. Archibald.
[1]Muhimbili University Health and Alllied Sciences, Dar es Salaam, Tanzania.
[2]Abbas Medical Centre, Dar es Salaam, Tanzania.
[3]College of Medicine, University of Florida, Gainesville, Florida, USA.

Background: The prevalence of diabetes mellitus (DM) continues to increase in the African continent and is projected to reach 20 million by the year 2030. In Tanzania, rates of diabetic foot ulcers (DFU) are increasing and are a leading cause of lower limb amputation (LLA). Effective prevention and primary and secondary care are contingent on publication of DFU epidemiology. Unfortunately, such data are lacking. Objectives: To (i) describe the epidemiology of DFU in a large Tanzanian patient population; and (ii) investigate predictors and factors associated with better outcomes. Methods: We analyzed DFU surveillance data aggregated for persons with DM who attended the Muhimbili National Hospital diabetes clinic during 1997-2008 (study period). In addition, we conducted a case-control study to investigate associations between outcomes and risk factors, and constructed logistic regression models. Results: 736 patients were studied: 70% were males; 98% were African race; 94% had type 2 DM vs. 6% type 1 DM. The mean age of persons with type 1 DM was 43 years vs. 56 years for type 2 DM. DM duration was defined as the period in which patients had DM before they were hospitalized for first-time DFU: 73% had DFU in first 10 years of DM diagnosis, 23% during 2nd decade, and 4% after 20 years. DFU duration defined the period between onset and hospitalization for first-time DFU: 74% had DFU for up to 4 weeks before presentation, 14% for 4-8 weeks, and 5% >12 weeks. Patients were more likely to be admitted to hospital during the first 4 weeks after DFU onset. Among the DFU cohort, 11% had a DM family history; 85% had peripheral neuropathy (PN)—this proportion trended upward; 20% had peripheral vascular disease (PVD), which decreased and remained at zero after 2006; 46% of DFU patients underwent LLA. Nine (1.2%) patients had long-term deformities. Logistic models showed (i) gangrene and DM family history were predictive of amputation; (ii) PVD and PN were predictive of gangrene. Conclusion: Though DFU prevalence is increasing in Tanzania, outcomes are improving and are likely linked to the Step-by-Step Program. Hospitalization for DFU is common and certainly utilizes scarce resources. These data are useful for healthcare providers, policy makers, and those who make public health decisions and allocate resources. Finally, because of demographic similarities across Africa, we believe our findings can be extrapolated to the prevention of DFU in other African countries.