

## [P02] THE CHARCOT FOOT: AN EMERGING PUBLIC HEALTH PROBLEM FOR AFRICAN DIABETES POPULATION

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**Background:** Although the awareness, diagnosis, management of the complications associated with diabetes have improved in African countries over the past decade, surveillance activities in Tanzania and anecdotal reports from other African countries have suggested increasing prevalence of Charcot Foot over the past few years. Charcot foot is a very serious condition that can lead to severe deformity, disability, or, ultimately, amputation. This is of concern because of the potential for Charcot foot to set back the positive progress, and outcomes, including reduced rates of leg amputations, achieved by the *Step by Step Foot Program* in Africa.

**Aim:** We therefore carried out this study to (i) characterize the epidemiology and clinical burden of Charcot Foot in a large diabetes population in Tanzania; and (ii) evaluate outcomes of persons with the condition.

**Methods:** This was a prospective analytic cohort study. A case was defined as any person with diabetes who presented to the Muhimbili National Hospital (MNH) diabetes clinic during January 2013 through December 2015 (study period) and diagnosed Charcot Foot for the first time. Following informed consent, patients were followed up in the MNH outpatient clinic. We carried out detailed clinical assessments, and documented presence of peripheral neuropathy (PN), macrovascular disease (i.e., peripheral vascular disease, cerebrovascular, or ischemic heart disease [IHD]), and microvascular disease (retinopathy or nephropathy). Education and counseling were part of the follow-up program.

**Results:** of 3,271 patients who presented to the MNH clinic during the 3-year study period, 571 (18%) met the case-definition for Charcot Foot; all case-patients had type 2 diabetes. The prevalence for each of the years 2013, 2014, and 2015 was 19/1192 (1.6%), 209/1044 (20%), and 343/1035 (34%), respectively; the increases in the slope of the trendline was statistically significant ( $p < 0.001$ ). Of these, 374 (65%) were male. The characteristics of case-patients were as follows: median age: 56 (range: 14-92) years; median duration of diabetes 10 (range: 0-33) years; median body mass index: 26.6 (range: 18-49) kg/m<sup>2</sup>. Of the 571 study patients, 547 (96%) had PN; none had microvascular disease. In addition, none of the 147 (26%) persons with macrovascular disease had cerebrovascular disease or IHD. All 571 patients had presented with open foot ulcers—397 (70%) were Wagner stage 2, 72 (12%) were Wagner stage 3, and 102 (18%) were Wagner stage 4. Over 90% of acute these ulcers were in the midfoot region. Common precipitating factors included blisters (36%), callus (13%), prick with sharp object (9.3%), rat bites (9%); blunt trauma (7%), or burns (4%). Delay in seeking medical treatment was common (median 7 [range: 1-360] days. Management included sloughectomy (513 [90%]) and major limb amputation (21 [4%]).

**Conclusion:** the prevalence of Charcot Foot disease is increasing in the Tanzanian diabetes patient population, and is strongly associated with neuropathy. Charcot Foot can lead to severe deformity, disability, and amputation. Because the risk of limb amputation, it is important that patients with diabetes seek immediate care if signs or symptoms appear and avoid delay in seeking medical attention. Early diagnosis of Charcot Foot by care givers is extremely important for successful outcomes. Warmth to the touch, redness, and localized swelling with tenderness in the feet are key clinical findings that might herald a Charcot Foot.