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Commentary

Sub-Sahara Africa—The impact and challenge of type 2 diabetes mellitus requiring urgent and sustainable public health measures

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Sub-Sahara Africa (SSA) is cartographic term which comprises just over 40 countries lying south of the Sahara desert in the African continent and is highly distinctive compared with the region north of the desert in terms of etymology, demographics, culture, climate, socio-economics, religion and politics. Apart from South Africa, nearly half of all sub-Saharan people are aged less than 15 years and average life expectancy is diminished, often being no higher than 60 years. Key health issues have been related to the HIV/AIDS epidemic, malaria and other infectious diseases, but now SSA, as a consequence of transitions connected with population dynamics and socio-cultural trends, also faces the rise of cardiovascular disease which poses significant challenges to ill-equipped government controlled and funded health services. The prevalence of diabetes in those aged 20–79 years in SSA countries has increased rapidly in the last quarter of a century with varying rates of 2.0% in The Gambia, 6.3% in the Congo, 9.3% in South Africa, and as high as 14.8% in Mauritius [1]. In view of concerns about the reliability of data about diagnosis rates, vascular complication burden, use of preventative measures, and application of cost-effective strategies [2], the publication by Ekoru K et al, 2019 [3] is a timely intervention to address gaps in our knowledge of diabetes complications and comorbidity profiles associated with type 2 diabetes in SSA.

Data in the latter study [3] was collected from approximately 6,000 participants of which nearly half had type 2 diabetes of mean age 56 (SD 11) years and 5 years of known duration of diabetes who were participating in the large case-controlled study (the Africa America Diabetes Mellitus (AADM) Study) [4]. Enrolled participants were aged 18 years and over with or without

type 2 diabetes and received a comprehensive evaluation including lifestyle choices, anthropometry, cardiometabolic parameters, complications screening including peripheral neuropathy, retinopathy testing, comorbidity profiling, and had fasting blood samples taken for glucose, lipids and other clinical biomarkers. The median fasting blood glucose level among cases was 9.8 (IQR 5.9–12.5) mmol/L, and four out of five cases took metformin and/or a sulphonylurea as their main glucose-lowering medication. The study revealed high prevalences of complications despite a relatively short known duration of diabetes: the metabolic syndrome (78%), hypertension (71%), cataracts (32%), obesity (27%), hyperlipidaemia, neurological deficits including sensory deficits (46% by history), and 35% of men had erectile dysfunction. As expected, risk factors for these findings indicated that in combination or in cases as a separate risk factor, older age, BMI, and longer duration of diabetes were associated with many of the defined complications and comorbidities. A degree of heterogeneity of risk factor associations across SSA was inevitable.

This was an impressive study and builds on the findings of the previous Diabcare Africa Study [5]. The current study, however, provides more precise diabetes prevalences data and risk factor identification, and represents the largest cross-sectional study of type 2 diabetes and its associations with complications and comorbidities. These data suggest that a high proportion of cases are diagnosed with diabetes late in the evolution of the condition and along with the high prevailing rates of hyperglycaemia provide a part explanation for high microvascular rates. In addition, the high rates of hypertension, hyperlipidaemia and obesity in individuals with poor glycaemia control provide a platform for developing cardiovascular disease and stroke which are now emerging as increasing causes of death in SSA.

Further research to complete important gaps in the nature of type 2 diabetes in SSA and how it is managed would need to

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include regional variations in the application of diagnostic criteria, the use of HbA1c as a marker of diabetes control, how health services are accessed and resourced, and establishing disease registries and longitudinal studies to more accurately interpret risk factor influences.

It is abundantly clear that the burden of type 2 diabetes in SSA is now immense and that national and international public health interventions are necessary. Structured pathways that include earlier screening for diabetes, offering inexpensive medications, and implementing an integrated clinic system that deals with diagnosis, risk factor identification, and complications should enable patients to access a minimal level of diabetes care in one setting. An educational initiative to underpin and enhance success of public health measures is urgently required at the individual, health professional level, and health provider level. A focus on complications prevention will be essential to reduce total healthcare costs attributable to diabetes in SSA which have been estimated to be between US\$35 billion to US\$59 billion by 2030 [2]. Achieving success in terms of improved well being and greater life expectancy of sub-Saharan Africans with diabetes will not only require the above measures but a wider implementation of initiatives such as the WHO Global Action Plan for the Prevention and Treatment of non-

communicable disease (NCDs), 2013–2020 and its successors [6]. Such ambitions require significantly higher funding levels and this continues to represent a key obstacle in one of the most economically deprived areas of the world.

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