Prevalence of the Metabolic Syndrome among Nigerians with type 2 diabetes

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Abstract
The Metabolic Syndrome is a cluster of abnormalities that carry a grave risk for vascular events. This study determined its prevalence among Nigerians with type 2 diabetes. Using WHO criteria, the prevalence of the syndrome in 408 Nigerian type 2 diabetic patients was 51%. This high frequency requires urgent lifestyle-based intervention.

Introduction
In the late 1940s and early 1950s, Jean Vague presented a paper on a special sexual differentiation of obesity and its consequences. He identified a masculine form of abdominal obesity that predisposed to diabetes, atherosclerosis and what he later called 'diabetogenic obesity'. Reaven, in 1988, described a multifaceted metabolic abnormality consisting of insulin resistance with compensatory hyperinsulinaemia, type 2 diabetes, hypertension, and hypercholesterolaemia. This was called 'Syndrome X' or 'Reaven's syndrome'.

The definition of this syndrome has been modified over the years. However, according to a World Health Organization (WHO) consultation report on the diagnosis and classification of diabetes in 1999, the diagnosis of the Metabolic Syndrome is made in the presence of glucose intolerance or type 2 diabetes and/or insulin resistance with two or more of the following components: hypertension (BP ≥140/90 mmHg); obesity, waist to hip ratio (WHR) in males ≥ 0.90 and in females ≥0.85; body mass index (BMI) >30 kg/m²; hypertriglyceridaemia (≥1.7mmol/L); low HDL-cholesterol (<0.9 mmol/L in males, <1.0 mmol/L in females); microalbuminuria (urinary albumin excretion rate ≥ 20 mg/min or an albumin:creatinine ratio ≥30 mg/g).

The Metabolic Syndrome occurs in a wide variety of ethnic groups and is a product of genetic, hormonal, and lifestyle factors such as obesity and physical inactivity, and increasing age. The exact mechanism of this syndrome still remains hypothetical, although many studies are in favour of insulin resistance with compensatory hyperinsulinaemia as the main factor that leads to other components of the syndrome. The importance of the Metabolic Syndrome lies in the fact that each individual component carries a grave risk for severe vascular events, and the combination has a synergistic effect. Little has been reported of the Metabolic Syndrome among Nigerians and the objective of this study was to determine its prevalence among Nigerians with type 2 diabetes and to describe the frequency of the syndrome components.

Patients and methods
Four hundred and eight (408) patients with type 2 diabetes attending the medical out-patient clinic of the Lagos University Teaching Hospital (LUTH), Lagos, Nigeria were screened for the Metabolic Syndrome. Their consent was sought and approval was obtained from the ethical committee of the hospital. Patients known to have had type 2 diabetes for at least 6 months, and aged 30–70 years, were enrolled. A brief clinical history was obtained and their anthropometric indices and blood pressure were measured.

The diagnosis of Metabolic Syndrome was made based on the WHO criteria of the presence of type 2 diabetes, hypertension (BP ≥140/90 mmHg or on anti-hypertensive medication), and obesity (BMI ≥30 kg/m² and/or a WHR in males ≥0.9 and in females ≥0.85).

Results
Out of the 408 patients enrolled, 60% were female and the mean age was 56±12 years. The prevalence of Metabolic Syndrome was 51 (56% of women and 44% of men). The mean age was 59±12 years for patients with Metabolic Syndrome and a majority were over 60 years with 46% aged 40–59 years (see Figure 1). About 70% of the whole group were centrally obese using WHR, and 42% were obese using waist circumference (WC) only; 24% had generalised obesity and 59% had hypertension.

Discussion
Changing lifestyles, characterised by increased caloric intake and reduction in physical activity, coupled with Westernisation, have led to an increase in the prevalence of type 2 diabetes in Nigeria. About half of the patients screened had Metabolic Syndrome, probably reflecting a strong relationship with type 2 diabetes. It is more...
common among the elderly (58%) than in other groups; this is possibly attributable to a sedentary lifestyle since they may not be actively employed and usually have very low levels of physical activity, in addition to increased caloric intake. The higher proportion of females to males (6:4) may be due to the nature of Nigerian women in that they seek medical attention more than men, and they are generally more compliant with treatment.

Akbar found a prevalence of 56% of Metabolic Syndrome among a population of 428 Saudi Arabians with type 2 diabetes, with a female to male ratio of 4:6. Most of the patients were also elderly with a mean age of 60±13 years. Our findings are in agreement with those of Akbar’s. However, there were more males than females in his study; the reverse was the case in our research. This could be as a result of socio-cultural and religious differences between the studied groups. The health-seeking behaviour of a pure Islamic population may permit more men to have access to health facilities than women, compared with the cosmopolitan nature of Lagos. Chaiken et al found a Metabolic Syndrome prevalence of 70% among 90 Black Americans with type 2 diabetes, using glucose disposal rates in a euglycaemic insulin clamp technique. This finding is higher than ours and may be due to genetic and/or environmental factors, as well as different diagnostic techniques.

In conclusion, the Metabolic Syndrome is very common among Nigerians with type 2 diabetes. Treatment should be centered not only on glycaemic control, but also on the other components of the syndrome.

References