ABSTRACT

BACKGROUND

The burden of diabetes mellitus has become an important issue of public concern. An epidemic of Type2 Diabetes Mellitus (T2DM) and its morbidities is under way worldwide with developing countries being disproportionately affected. This poses great challenges in the management of T2DM patients particularly in developing countries like Nigeria. Secondary oral hypoglycaemic agent (OHA) failure is one of the many challenges of diabetes management, the consequence of which is poor diabetes control and early development of chronic complications. Prospective studies on secondary OHA failure have not been done in Northern Nigeria.

The aim of this study was to determine the prevalence and risk factors associated with development of secondary failure of OHA among T2DM subjects.

METHODS

A total of 200 hundred consecutive T2DM patients were studied over a 10 months period. Parameters studied included age, sex, BMI, WC, FPG, 2hrPPG, lipids profile, glycated haemoglobin and GAD autoantibody positivity. The prevalence of OHA failure was determined using simple percentage and risk factors were determined by comparing the clinical and laboratory parameters between
subjects with OHA failure and those without OHA failure. The relative risk was estimated by calculating the odds ratio (O.R).

**RESULTS**

The mean (SD) age of the subjects was 53.2(8.9) years (range 34-75 years). The prevalence rate of secondary OHA failure was 36% with a female preponderance 46(63.9%); males were 26(36.1%). Fifty four (75%) of them belonged to low social class. The mean(SD) BMI [22.9(5.4) kg/m^2 ] and mean (SD) WC for both males and females [87.7(11.3)cm and 90.3(7.9)cm] were significantly lower in subjects with OHA failure than those without OHA failure [27.2(4.8)kg/m^2, 93.5(10)cm and 95.7(6.8)cm respectively], p<0.05.

The mean (SD) FPG [11.7(2.6) mmol/L], 2hr PPG [14.5(3.7) mmol/L] and HbA1c [8.3(1.42)‰] of those with OHA failure indicating poor glycaemic control were significantly higher than in those without OHA failure [5.7 (1.5)mmol/L, 11.1 (2.8)mmol/L and 7.0(2.07)‰ respectively], p<0.05. The mean (SD) TC, LDL-C and TG [4.89(0.90) mmol/L, 3.8(0.9) mmol/L and 0.95 (0.34) mmol/L] in subjects with OHA failure were lower than in subjects without OHA failure, though not significant p>0.05.

The prevalence of anti-GAD positivity generally among the study subjects was 14.5% while in those with and without OHA failure were found to be 31.4% and 3.1% respectively. Risk factors that were associated with secondary OHA
failure included early age at diagnosis of diabetes, duration of diabetes, WC, BMI, FPG, 2hr PPG, TG and HbA1c.

**CONCLUSION**

The prevalence of secondary OHA failure appears to be high among T2DM patients in the Northern part of Nigeria. Low BMI, WC and duration of diabetes have been found to be risk factors.

The consequence of secondary OHA failure is early development of chronic diabetes complications. The burden of the morbidity and mortality from these complications is enormous particularly in a developing country like Nigeria. Therefore improved diabetes education and routine screening of T2DM patients for secondary OHA failure risk factors are recommended for early detection and prompt management, in order to reduce the rate of chronic complications.