SUMMARY

Background:

Obesity and hypertension are becoming increasingly more prevalent in many African and other developing countries, leading to an increase in the burden of chronic non-communicable diseases. Epidemiological studies have attributed this development to changes in lifestyle and diet. Recently, Asaba in Delta state of Nigeria is witnessing a rapid growth in urbanization and fast food industry. Several studies have shown that blood pressure is directly associated with body mass index (BMI) in populations worldwide. However, some variations exist in the pattern of the association between blood pressure and BMI among populations. The present study examines relationship between body mass index and blood pressure in the patients attending the General Outpatient Clinic of Federal Medical Centre, Asaba, Delta state.

Methods

The body weight, height and blood pressure of 304 study participants were determined using the standard protocols. BMI was calculated as weight divided by height squared and hypertension was defined using the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC) VII guidelines. All statistical analyses were performed separately according to gender using the Statistical Package for Social Science (SPSS version 17.0). P values of less than 0.05 were considered to indicate statistical significance.

Results

Three hundred and four patients fulfilling the inclusion criteria were studied. The age range of the study sample was 18-65 years. One hundred and fifty three (51.3%) patients were males while 151(49.7%) patients were females. The mean weight, height and BMI in the total study population was 76.93 ± 21.77kg, 1.62 ± 0.13m and 22.22 ± 5.83 kg/m². The male subjects were
little heavier and taller than the females. The mean of systolic and diastolic blood pressures in the sample population were 108.60±standard deviation (SD) of 23.96mm Hg and 73.72± 15.17mm Hg, respectively. Males had higher SBP and DBP than the female subjects. The prevalence of obesity in the sample population was 9.5% (29). More males 5.3 % (16) were obese than females 4.3 % (13). Less than 12% of the subjects (34) had systolic BP in the hypertensive range. The percentage of the sample population having diastolic BP in the hypertensive range was 20.1% (61). Males had a relatively high prevalence of systolic hypertension compared with the females while females had a relatively higher prevalence of diastolic hypertension than males. There was a positive relationship between both systolic and diastolic blood pressure and BMI. Correlation coefficient showed that relationship of BMI with systolic BP (r = 0.872, p<0.05) was stronger than diastolic BP (r = 0.857, p<0.05).

Multiple linear regression analysis performed to estimate the coefficient of variability of BMI due to selected socio-demographic variables showed that the socio-demographic factors that correlated with BMI of the study population included age, educational level and marital status.

**Conclusions**

Blood pressure and BMI levels vary among populations. The present study demonstrates an association between blood pressure and BMI, suggesting that obesity is a strong risk factor for the development of hypertension in males and females.