SUMMARY

Background

Systemic hypertension is an important clinical problem in Nigeria and is often associated with impaired left ventricular diastolic function and left ventricular hypertrophy. Left ventricular (LV) diastolic dysfunction also occurs in hypertensives with normal systolic function.

Objectives

The study used some Doppler transmitral inflow and pulmonary venous flow velocities to determine the prevalence of LV diastolic dysfunction both in hypertensives and in normotensives and determined their correlates.

Patients and Methods

The study was carried out at the Cardiology unit of the University of Ilorin Teaching Hospital, Ilorin between May 2005 and April 2006. One hundred and fifty (150) newly diagnosed cases of systemic hypertension (74 males and 76 females) and 150 age and sex-matched normotensive controls (74 males and 76 females), aged between 35 and 74 years were enrolled into the study. They were recruited from among the hypertensives referred to the cardiology clinic from the accident and emergency unit, eye clinic, general out patient department, and the private clinics. The hypertensives were divided into 2 groups based on echo-determined left ventricular mass index: Group I-newly diagnosed cases of systemic hypertension without left ventricular hypertrophy (early presenters) = 56, II-Newly diagnosed cases of systemic hypertension with left ventricular
hypertrophy (delayed presenters) =94, and the normotensive controls without left ventricular hypertrophy=150 constituted group III.

They were all examined clinically and subjected to full echocardiographic examinations including Doppler, according to the ASE recommendations. The Doppler transmitral inflow and the pulmonary venous flow velocities were measured in all the groups and the parameters used to categorize them into various patterns (grades) of diastolic dysfunction. E/A < 1 was taken to indicate diastolic dysfunction

**Results**

The mean age of the hypertensives was 52.74±9.81 years while that of the normotensive controls was 52.59±9.58 years. There was no statistically significant difference between their mean ages (P=0.896). There was statistically significant difference between the mean E/A ratios of the early presenters 1.00±0.30 and that of the normotensive controls 1.33±0.27 (p<0.001). Similarly there was statistically significant difference between the mean E/A ratios of the normotensive controls 1.33±0.27 and the delayed presenters 1.04±0.42 (p<0.001). However, the mean E/A ratios did not differ significantly between the early presenters 1.00±0.30 and the delayed presenters 1.04±0.42 (P=0.531). The prevalence of LV diastolic dysfunction in newly diagnosed cases of systemic hypertension was 62%, which is 93 out of 150 subjects. 37(39.8%) were early presenters and 56 (60.2%) were delayed presenters. In the normotensive control group, 11.3% (17 out of 150 subjects had diastolic dysfunction. Impaired relaxation was the commonest pattern (84.9%) of diastolic dysfunction. Only 2 (2.2%) of the newly diagnosed cases of systemic hypertension had restrictive pattern of diastolic dysfunction. Age (r =- 0.161, p=0.03), heart rate (r =- 0.282 p<0.001) and aortic root dimension (r=- 0.232, p=0.00) were the independent
correlates of diastolic dysfunction in the newly diagnosed cases of systemic hypertension. Age as well as the pulse pressure were however the correlates of diastolic dysfunction in normotensive controls. Body mass index, waist hip ratio, left atrial dimension and diastolic blood pressure were less important determinants. The systolic function of all the groups was within normal limits.

**Conclusion**

LV diastolic dysfunction is prevalent in newly diagnosed cases of systemic hypertension in Ilorin, Nigeria and to a lesser extent in normotensive controls. Longitudinal studies are required to determine the outcome of these abnormalities.