HYPERTENSION IN TYPE II DIABETES MELLITUS IN JOS UNIVERSITY TEACHING HOSPITAL, JOS, NIGERIA.

By

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ABSTRACT

Objective: We assessed 85 patients with type II diabetes mellitus to determine the proportion of hypertension in accordance with WHO criteria. Other clinical parameters such as fundoscopic examination and urinalysis were carried out.

Methods: A cross-sectional study of hypertension in type II diabetic patients in the Jos University Teaching Hospital, Jos, Nigeria.

Result: Forty-two (49.4%) of the patients were hypertensive with only 28 (32.9%) previously diagnosed and were on treatment. Age of patient, duration of diabetes and diabetic retinopathy were significantly associated with hypertension in diabetes.

Conclusion:
Hypertension is commoner in diabetes in sub-Saharan Africa than it was previously believed. The finding of hypertension should arouse the possibility of the presence of microangiopathic complications in type II diabetes.

INTRODUCTION

Hypertension is common in diabetes mellitus and accelerates the course of diabetic microangiopathic complication[1]. Its presence also adversely affects cardiovascular mortality and morbidity in these patients. Over 50% of diabetics in the western world are hypertensive[2]. The true prevalence of hypertension in diabetes in sub-Saharan Africa is unknown, although figures between 12.5-39.2% have been reported.[3-8]

These studies however defined hypertension as a systolic blood pressure greater than 160mmHg and/or a diastolic blood pressure greater than 95mmHg. Using the widely accepted recommendations of the Joint National Committee on blood pressure detection, the prevalence of hypertension in type II diabetes mellitus as this constitutes over 95% of our diabetic patients[9].

Methods: Patients with type II diabetes mellitus diagnosed and classified according to the World Health Organization criteria[10,11] attending the diabetes outpatient clinic of the Jos University Teaching Hospital (JUTH), a tertiary referral centre for North Central Nigeria were studied between January 1999 and November 1999.

The study was approved by the ethical committee of the hospital and informed consent was obtained from the patients. Each consecutive patient was interviewed and examined at monthly intervals for 3 months. Blood pressure (BP) was taken at each visit with the patient in a sitting position after Resting for 10mins using an Accouson Mercury sphygmomanometer, diastolic BP recorded at phase V Korotkoff sound. Hypertension was defined as previous treatment for hypertension or a systolic BP>140mmHg and/or a diastolic BP>90mmHg on three consecutive visits[9]. Fundoscopy was performed under pupillary dilation with phenylephrine using a Welch-Allyn Opthalmoscope. Early morning first void urine samples were tested for clinical grade proteinuria using multistix and negative urine samples were tested for microalbuminuria using micral test strips. This procedure was done on three consecutive occasions. Diabetic nephropathy was defined as persistent proteinuria (microalbuminuria or clinical grade proteinuria) on at least two occasions of one month interval in the absence of any evidence of intrinsic renal and/or urinary tract disease[12].

Data collected was analysed using EPI info version 6.04b. Results were expressed in means and standard (SD) P values < 0.05 were considered significant.

Results: A total of 85 patients were studied (Table I). There were 40 (47.1%) males and 45 (52.9%)females with a mean age of 51.01 + 11.72 years.

Forty-two (49.4%) of the patients were hypertensive with only 28 (32.9%) previously diagnosed and on treatment. Of these, 30(71.4%) had both systolic and diastolic blood pressure elevations, 7(16.7%) and 5(11.9%) had only elevated systolic and diastolic BP respectively.

Nineteen (45.2%) of the hypertensives were males and 23(54.8%) females. This difference was not statistically significant. The mean age of hypertensive patients was 52.62 + 7.19 years while that for normotensives was 49.44 + 10.88 years. This difference was statistically significant (P=0.04).

Mean body mass index in hypertensives was similar to that in normotensives, although 34(40%) of the study patients were obese, of which 26(76.5%) were females.

The mean duration of diabetes was significantly higher in hypertensives compare to normotensives (7.88 + 5.02 years vs 4.75 + 2.79 years, P=0.04).

Diabetic retinopathy occurred in 42.9% of hypertensives compared to 20.9% of normotensives. This difference was statistically significant, P value = 0.02. similarly, diabetic nephropathy occurred in 66.7% of hypertensives and 46.5% of normotensives, though this difference is not statistically significant, P=0.06.

Characteristics	Hypertensive	Non-Hypertensive	P value
Number (%)	42(49.4)	43(50.8)	*NS
Mean age (years)	52.62+7.19	49.44 + 10.88	0.04
Sex (male)(%)	19(45.2)	21(48.8)	NS
Family history of Hypertension (%)	11(26.2)	9(20.9)	NS
Mean duration of Diabetes (years)	7.88 + 5.02	4.75 + 4.79	0.04
Mean BMJ (kg/M2)	26.03 + 4.98	26.30 + 6.39	NS
Diabetic retinopathy(%)	18(42.9)	9(20.9)	0.02
Neuropathy (%)	28(66.7)	21(48.8)	NS
Diabetic nephropathy (%)	28(66.7)	20(46.5)	0.06 (NS)

*NS - P value not significant

DISCUSSION: Nearly half of our diabetic patients were hypertensive. Although only a third would have been if the cut off level for diagnosing hypertension of > 160/95mmHg was used and this would have compared well with previous reports.

Hypertension was commoner among females. Though this difference is not statistically significant, this is in keeping with previous studies[4,6].

Age appears to be a significant risk factor for hypertension in this study. This is not surprising as blood pressure generally tend to increase with age.

Though conflicting with previous reports from the western world obesity does not appear as a significant risk factor for hypertension in type II diabetes[13,14]. The finding of this study is however in keeping with the report from Ilorin, Nigeria[7].

Our data shows a significant association between duration of diabetes and hypertension. The reason for this is not known. It may however be due to the fact that diabetic nephropathy (which would present with hypertension among others) which develops with prolonged duration of Diabetes more than 15 years is contributory. Although there was no significant association between diabetic nephropathy and hypertension, hypertension occurred more in patients with diabetic nephropathy.

The significant association described between hypertension and diabetic retinopathy is in keeping with results of several large multicentre studies [12,16]. These studies even further demonstrated the effect of treatment on the course of this complication.

We thus conclude that hypertension is commoner in diabetes than was previously believed and therefore recommend further studies to determine the magnitude of this problem. In view of the devastating effects of these conditions on various organs, as the age of patient and duration of diabetes increase, screening for high blood pressure detection should be regularly embarked upon.

An integration into the health programme is suggested, especially in the rural health centres of Africa where fundoscopic examination may not be readily available (either due to lack of opthalmoscopes or frontline doctors experienced in fundoscopy), the finding of hypertension in diabetics should raise the suspicion of an associated diabetic retinopathy.

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