Research Article

A study of prevalence of hypertension in patients of diabetes mellitus

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Abstract

The goal of modern medicine is no longer merely treatment of the sickness but prevention of the disease; promation of good health and improvement of the quality of life. The dichotomy of medicine into two branches i.e. curative medicine and preventive medicine has moved towards a more rational and scientific approach towards disease. The rule of halves indicates that hypertension is an "Iceberg" disease. Only half of the hypertensive subjects were aware of their condition, and only half of those aware were being treated, and only half of those being treated were considered adequately treated. Recent reports have provided a new guideline in the **NHBPEP** and a new category designated as prehypertension (SBP 120 to 139 and DBP 80 to 89 mmHg) has evolved. Diabetic subjects are at an increased risk of cardiovascular disease (CVD).According to JNC 7 for individuals aged (40 to 70 years) every 20 mm increment of systolic BP and each 10 mm increment of diastolic BP doubles the risk of CVD. Common target organ damages are: 1) Heart- Left ventricular hypertrophy, Angina and myocardial infarction, Heart failure 2) Brain- Stroke and TIA. 3) Kidneys- Chronic renal disease. 4) Eyes- Retinopathy. 5) Vessels- Peripheral arterial disease.

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INTRODUCTION

Diabetes Mellitus is an emerging problem throughout the world and also in India. India is regarded as the diabetic capital of the world as the current figures of diabetes in India is around 40 million and Indians are increasingly susceptible to diabetes. Currently the number of cases of diabetes worldwide is estimated to be around 150 millions. This number is predicted to double by the year 2025 with the greatest number of cases being expected in China and India[1]. Diabetes Mellitus and hypertension coexist in approximately 30 % of Type 1 and 20 to 60 % of Type 2 Diabetes Mellitus[2,3]. Hypertension and diabetes is an added risk factor for organ damage like Heart, Kidneys, Nerves etc. Meticulous control of hypertension prevents diabetic complications. The target blood pressure control is even lower in Diabetes Mellitus then in normal population[4]**.** The JNC 07 report provided a new category of hypertension designated as Prehypertension[5]. Individuals with systolic blood pressure of 120 to 130 mmHg and diastolic of 80 to 89 mmHg are considered as prehypertensive. Patients of prehypertension are at an increased risk of progression to hypertension and its complication. It has been observed that early identification of hypertension and control of hypertension of diabetes is rewarding for prevention and progression of cardiovascular and cerebrovascular complications.

AIMS AND OBJECTIVES

The purpose of the study is to document the prevalance of cardiovascular risk factors and target orgaan damages associated with hypertension in diabetes. The present study has therefore been undertaken and it proposes:-

- To document the prevelance of hypertension amongst the diadnosed cases of diabetes mellitus.
- To document the significance of cardiovascular risk factors and target organ damages associated with prehypertension.
- To have similar documentation in suitably matched diabetic subjects with hypertension and normotension and to compare them.

MATERIALS AND METHOD

Type of study: Cross sectional

Place of study: Subjects to be taken from outpatient and inpatient department of Medicine and Diabetic Clinic. M.G.M. Medical College and L.S.K Hospital Kishanganj (Bihar).

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Duration of study: One year including data analyces (September 2013 - 2014)

Sample: 100 diabetic patients will be chosen from the Medicine OPD, Inpatient department and Diabetic Clinic.

Procedure of data collection: Data will be collected by taking proper histroy and then examining the patient clinically and by laboratory investigations.

1. History will be taken carefully with special reference of the following points:-
   - i. Age of detection of diabetes.
   - ii. Duration of disease.
   - iii. Nutritional history (Weight / Veg/ Non-Veg / Dietary habits)
   - iv. Socio economic status (Annual income / No. of Family members)
   - v. Family history of DM HTN obesity, premature CHD, Sudden death.
   - vi. Personal history : Addiction (Smoking, Alcohol, Tobacco)
     - Lifestyle (Secondary / Active)
     - Exercise habits
     - Menstural history and pariety in females
   - vii. Coronory risk factor profile (HTN , Past H/o , CAD , Dyslipidemia, Obesity)
   - viii. Symptoms related to diabetic complications: (Diminished vision, paraesthesia, postural hypotension, claudication, exertional dyspnoea, oedema, skin changes, TIA and stroke)
2. Clinical Examination: Height, Weight, BMI (Body mass index), Waist circumference, Blood pressure, Arterial pulses.
3. Biochemical Investigations:
   a. Blood sugar – F
   b. Blood sugar – PP (2 hrs after normal breakfast)
   c. Lipid profile (After 12 hrs overnight fasting)
   d. Serum Urea and creatinine
   e. Serun Uric Acid
   f. 24 hrs. Urine albumin / spot urine albumin
   g. Chest X-Ray (PA).
   h. ECH (Electrocardiography)
   i. TMT / ETT (Exercise Tolerance Test)

RESULTS

Mean age in our study was 48.75 years (58 males And 42 females) i.e. female hypertension appeared early. 12 % were normotensive, 33% prehypertensive and 55 % hypertensive. 63.65 % had positive family history and 13 males had history of smoking. 14 % had general obesity 23 % isolated central obesity. 81 subjects had normal resting ECG and only 13 % showed positive changes during ETT. LVH was detected in 17 subjects. 11 % showed diabetic retinopathy. Albuminuria was detected in 18 subjects.

DISCUSSION

Male diabetic subjects showed increased prevelence of hypertension than the females. As the duration diabetes increase showed in the prevelence of hypertension. Prevelence of generalized obesity was much more in hypertensive subjects. There was a female predominance of central obesity along with hypertension. Hypertriglyceridemia, raised LDLc and decrease HDLc was noted. Difference in resting ECG changes between normotensive and hypertensive was in significant. LVH was more in hypertensive (p=0.01).PDR developed earlier in hypertensive subjects.

CONCLUSION

Though the external morphology of the hypertensive were colsed to their normotensive counterparts some cardiovascular risk factors like: dyslipidemia, early diabetic retinopathy and early renal damage and myocardial ischemia were more prevelant in hypertensive. Hypertension is a common associate of diabetes mellitus and should be considered for active management by lifestyle modification and drugs as early as possible to delay or pervent end organ damages.

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