ORIGINAL RESEARCH PAPER

Medicine

A STUDY OF PREVALENCE OF PREHYPERTENSION AND ITS ASSOCIATIONS IN DIABETES MELLITUS

KEY WORDS: Prehypertension; Diabetes mellitus, CVD; Hypertension

Dr. Akhilesh Kumar* Junior Resident, Department of General Medicine, Patna Medical College & Hospital, Patna, BIHAR (800004) *Corresponding Author

Dr . Prabhat Ranjan Department of General Medicine, Patna Medical College & Hospital, Patna, BIHAR (800004)

Dr. Saurav Kumar Department of General Medicine, Patna Medical College & Hospital, Patna, BIHAR (800004)

ABSTRACT

BACKGROUND Meticulous Blood pressure lowering has more positive effect than blood glucose level control over the cardiovascular outcome. Hence early detection of prehypertension and prevention or utmost delay of the development of hypertension is very important.

AIM To determine the prevalence of prehypertension in diabetic patients and determine the associations of significant cardiovascular risk factors in these subjects with **"prehypertension and diabetes."**

METHOD Cross sectional study of 100 diabetic patients was done

RESULT Out of 100 patients with Type2 DM, 33% had PREHYPERTENSION. All the risk factor (dyslipidaemia, central obesity etc.) and target organ damage (micro albuminuria, early diabetic retinopathy, resting ECG changes) were as prevalent as hypertensive group.

CONCLUSION The prehypertensive group had considerably more target organ damages than normotensives. Prehypertension was found as a common association in diabetes, and should be considered for active management by diet, exercise, and if needed by drugs particularly of ACEI or ARB class to prevent further cardiovascular complications.

BACKGROUND

The goal of modern medicine is no longer merely treatment of the sickness but prevention of the disease, promotion of good health and improvement of the quality of life. It is well known that hypertension increases the prevalence of target organ damage in diabetics. Absence of hypertension reduces this risk. Meticulous BP lowering effect has more positive effect than meticulous blood glucose level control over the cardiovascular outcome. Hence early detection of those at risk and prevention or utmost delay of the development of hypertension is very important. Since hypertension and diabetes have compounding effect on cardiovascular outcome and since both of them clearly documented as separate risk factors, it is worthwhile to have a study on a subset of diabetic population and measure the prevalence of the newly evolved entity PREHYPERTENSION and its associated condition in diabetic subjects.

AIM

1. To determine the prevalence of prehypertension amongst diagnosed cases of diabetes mellitus.
2. To determine the other significant cardiovascular risk factors associations in these subjects with **"prehypertension and diabetes."**
3. To make similar documentations in suitably matched diabetic subjects with hypertension and normotension and to compare them.

METHODS

Cross sectional study of 100 diabetic patients was done to know the prevalence of prehypertension and its association in diabetic patient. Prehypertension was defined as per JNC 7 classification (systolic BP 120-139 mm of Hg OR, diastolic BP 80-89 mm of Hg) and diabetes as per ADA guidelines(symptoms of diabetes plus random plasma glucose >200 mg/dl, fasting plasma glucose >126 mg/dl, post prandial plasma glucose >200 mg/dl). Data were identified by clinical, and laboratory investigation.

RESULTS

- Overall prevalence of prehypertension was 33% in diabetic subjects.
- In comparison to prehypertension, prevalence of normotension and hypertension in diabetic population was 12% and 55% respectively in the study population.
- Overall prevalence of isolated central obesity, characterized by waist circumference more than normal specified for the sex, were 8.33%, 21.21% and 27.27% respectively in normotensive, prehypertensive and hypertensive groups.
- The prevalence of the combination of hypertriglyceridemia, raised LDL-c and decreased HDL-c in prehypertensive group was even more than the prevalence in hypertensive group (36.36% in prehypertensive vs. 34.55% in hypertensive). And this prevalence was almost double than the prevalence in normotensive group (16.67%).
- Prehypertensive group had resting ECG changes in 15.15%, which was fairly close to hypertensives 25.45%
- Prevalence of TMT abnormalities in prehypertensive group (18.18%) was fairly close to the hypertensive group (23.53%, p=0.6) and much more than the prevalence in the normotensive group (10%).
- The prevalence of proliferative diabetic retinopathy in prehypertensive group was almost double to the prevalence of proliferative diabetic retinopathy in normotensive group (16.16% vs. 8.33% respectively).
- Prevalence of albuminuria in prehypertension was comparable to the prevalence in the hypertension group (33.33% vs. 34.54% respectively, p=0.9) and this was much higher than the normotension group which was 8.33% only (p=0.09).
- Prevalence of diminished calculated GFR was highest in the hypertensive group (18.18%). However it was considerable in prehypertensive group (12.12%) and least in the normotensive group (8.33%).
- Isolated central obesity detected in 4.55% of male and 54.55% of female prehypertensives. Isolated central obesity was found more than the generalized obesity in the prehypertensive group. And female had more preponderance of central obesity. prehypertensives were more obese/overweight than normotensive and were hence predisposed to the hazards of overweight/obesity.

CONCLUSION

The prehypertensive group had considerably more target organ damages than normotensives as renal damages, retinal changes and myocardial ischaemia found more in the prehypertensive group.

Volume-8 | Issue-2 | February-2019 | PRINT ISSN - 2250-1991

Major portion of the prehypertensive subjects had some form of dyslipidaemias. Combination of raised LDL-c, hypertriglyceridemia and low HDL-c was the most common type of dyslipidaemia found in the prehypertensive group. So prehypertensives were predisposed to adverse cardiovascular effects related to dyslipidaemia.

Diabetic prehypertensive group though remained closer to their normotensive counterpart as regard to their external morphology, actually some cardiovascular risk factors like – dyslipidaemia, early diabetic retinopathy, early renal damage represented by microalbuminuria and myocardial ischaemia reflected by ECG and TMT changes, in this prehypertensive group were as prevalent as in hypertensive group.

This term emphasized that Prehypertension category was a pathological state with all serious risks associated with hypertension. Prehypertension was found as a common association in diabetes, and should be considered for active management by diet, exercise, and if needed by drugs particularly of ACEI or ARB class to prevent further cardiovascular complications.