

Prevalence of Hypertension in Diabetic Patients

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ABSTRACT

Objective: To find out the prevalence of hypertension in diabetic patients.

Study Design: Observational / descriptive study

Place and Duration of Study: This study was carried out in the Department of Medicine, Sir Ganga Ram Hospital and Fatima Jinnah Medical College, Lahore from December 2013 to May 2014.

Materials and Methods: A total of 100 patients were included in the study. Patient's demographic features and all the data were recorded on predesigned proforma and were analysed through SPSS version 16.0.

Results: Out of 100 patients, 55 (55%) were male and 45 (45%) were female. Age range was 30-65 years with mean age of 48.4 ± 9.3 years. Weight varied from 50-100 kg with mean weight of 68.2 ± 8.5 kg. Prevalence of hypertension was 30%. Hypertension was more prevalence in elderly diabetics (53.3 ± 7.8 years), in patients of longer duration of diabetic (7.66 ± 2.84 years). Retinopathy, ischemic heart disease (IHD) and neuropathy occurred frequently in diabetic hypertensive patients.

Conclusion: Diabetic and hypertension are highly associated with each other.

Key Words: Neuropathy, Diabetes mellitus, Hypertension

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INTRODUCTION

Diabetes mellitus (DM) is a most common metabolic disorder affecting a large number of populations in developed countries as well as developing countries. Hypertension also is an important health concern of world population and these diseases can occur separately or together.¹ Prevalence of diabetes mellitus is increasing worldwide and it will be 29.3 million by the year 2010.² Some factors influence not only mortality and morbidity but also the seriousness of complications. Among these factors is arterial hypertension. This factor altered glucose tolerance, insulin resistance; obesity and dyslipidemia comprise the metabolic syndrome.³

It is suggested that hypertension could be a 2-3 times more prevalent in diabetes than in general population.⁴ The increase in incidence in developing countries follows the trend of urbanization and lifestyle changes, "Western-style" diet and also predisposed genetically and has influence of family history.⁵

Established hypertension if found 30-50% of screened Caucasian patients.⁴ The other ethnic groups do not show the same prevalence in spite of similar disturbances. A higher prevalence of diabetes mellitus but a low prevalence of hypertension due genotypic variations is found.⁶ In patients with essential hypertension, the prevalence of diabetes is higher than in a normal population. In case central studies of hypertensive patients either untreated or receiving treatment, the prevalence of glucose intolerance ranges from 20-30%.⁷ Present study was done to find out the prevalence of hypertension in diabetic patients.

Hypertension is a disease of vascular regulation in which the mechanisms that control arterial pressure within the normal range are altered. The basic explanation is blood pressure that is elevated when there is increased peripheral vascular resistance. Hypertension may be essential hypertension or secondary hypertension.⁸

MATERIALS AND METHODS

This study was carried out in the Department of Sir Ganga Ram Hospital and Fatima Jinnah Medical College, Lahore from December 2013 to May 2014. A total of 100 patients were included in the study. Patient's demographic features and all the data were recorded on predesigned proforma and were analysed through SPSS version 16.0.

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RESULTS

Out of 100 patients, 55 (55%) were male and 45 (45%) were female. Age range was 30-65 years with mean age of 48.4 ± 9.3 years. Weight varied from 50-100 kg with mean weight of 68.2 ± 8.5 kg. Prevalence of hypertension was 30%. Hypertension was more prevalence in elderly diabetics (53.3 ± 7.8 years), in patients of longer duration of diabetic (7.66 ± 2.84 years). Microalbuminuria was present in 26% of the cases whereas macroalbuminuria was present in 30% of the cases. Various complications can be avoided by improving the quality of care (Table-1). Important features of hypertension have been described in table-2. Table-3 shows the diabetic complications of hypertensive and non-hypertensive subjects. Relationship of higher blood pressure and microalbuminuria is documented in table-4.

Table No.1: Complication of diabetes mellitus

Complication	No.	%age
Nephropathy	24	24.0
Retinopathy	36	36.0
Neuropathy	30	30.0
IHD	26	26.0

Table No.2: Epidemiological features of hypertension and non-hypertensive patients

Features	Hypertensive diabetic patients (30)	Non-hypertensive diabetic patients (70)
Age	53.3 ± 7.8	46.68 ± 8.9
Weight	72.0 ± 6.37	66.6 ± 5.42
Duration of diabetes	7.66 ± 2.84	4.8 ± 3.5

Table No.3: Frequency of diabetic complications

Complications	Hypertensive diabetic patients (%)	Non-hypertensive diabetic patients (%)
Nephropathy	50.0	50.0
Retinopathy	66.6	33.3
Neuropathy	53.3	46.7
IHD	85.0	15.0

Table No.4: Microalbuminuria and hypertension

Complications	Hypertensive diabetics	Non-hypertensive diabetics
Microalbuminuria mg/24 hours ⁴	233.3 ± 80	20330 ± 100

DISCUSSION

Hypertension was found in 30% of patients of diabetes mellitus. Due to lack of a large scale recent community survey in this country and selective nature of the present study sample, no valid comparison can be made

between the prevalence of hypertension in normal population and diabetics. However, we randomly selected 100 normal persons and after exclusion of diabetes in them, prevalence of hypertension was found 10% in them. It may be of some interest to state that a survey conducted in a group of sendentry workers in Lahore reported hypertension in just over 23%. This is in contrast to earlier studies done in selected communities in Pakistan in which the prevalence of hypertension was reported in 10% individuals screened.⁷ The Pima Indians have the world's highest reported incidence of diabetes. Since 1965, this population has participated in a longitudinal epidemiological study of diabetes and its complications.⁹ Age and sex adjusted prevalence of hypertension was 24% in those with normal glucose tolerance, 3.4% in those with impaired glucose tolerance and 40% in those with diabetes. Similarly in Pakistan the prevalence of hypertension was sought in 100 diabetic patients,¹⁰ Hypertension was present in 264 patients i.e. prevalence rate of 26.4%. Another study noted 27% diabetics had evidence of hypertension.¹¹ A higher prevalence of hypertension was noted in a study.^{12,13} The study evaluated the prevalence of risk factors for diabetic neuropathy and cardiovascular disease. The overall prevalence of hypertension was found 62.6% in them. To establish the prevalence of renal involvement and to identify associations with its most important possible risk factors in a group of patients with diabetes mellitus. The prevalence of hypertension was found to be 42%.¹⁴ General practitioners network in France in a recently conducted study found high blood pressure in 38.8% of the whole cohort.¹⁵ Recently, a population based study conducted showed a very high prevalence rate (67%) of hypertension in diabetics. The rate was higher in men.^{16,17}

Most (87%) subjects in the present study identified peripheral vascular diseases as a complication of Diabetes Mellitus. Majority (92%) of the sample, study has identified blindness/Retinopathy as main complication of Diabetes Mellitus.¹⁸ This may be due to the patients undergo foot sensations test every month, and eye check-up done on every 3 months. In the present study, knowledge about lifestyle modification among hypertensive subjects with DM was optimal. Almost all subjects stated that hypertension can be controlled by modifying dietary habits, 30% of subjects stated that they withdrawn from smoking and 58% subjects withdrawn from alcohol consumption for better management of hypertension with DM.

CONCLUSION

Diabetic and hypertension are highly associated with each other.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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