

Research Article

Prevalence of Type 2 Diabetes and Hypertension: Opportunistic Screening in Delhi

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A B S T R A C T

Introduction: Type 2 Diabetes and Hypertension are the two Non-Communicable Diseases (NCDs) that are on an increasing trend both at the global and national level. It has also been estimated that the prevalence of both the NCDs in India will be increasing further in the future. A better understanding and management of both diabetes and hypertension, which can be done by dietary changes and lifestyle modifications, would help in reducing cardiovascular mortality in India.

Methods: An opportunity was created while running a screening facility organised on the occasion of Ambedkar Jayanti 14th April, 2019 in Delhi. All consented individuals attending the screening camp who were 30 years or more of age were included in the study. Three Blood Pressure readings were taken and random blood sugar was measured for all the attending individuals, to diagnose hypertension and diabetes respectively. History regarding previously diagnosed hypertension and diabetes was also taken. The data was entered in a master sheet on MS Excel and later transferred from MS Excel to SPSS licensed Software version 20.0 for analysis.

Result: A total of 214 individuals aged 30 years or more were screened for Type 2 Diabetes and Hypertension, among them there were 78% (n=167) males and 22% (n=47) females among the screened individuals. About 27% (n=47) of the screened individuals had raised systolic blood pressure, and 33% (n=53) had raised diastolic blood pressure. The mean systolic blood pressure was 130.49±21.7 mmHg and mean diastolic blood pressure was 85.72± 12.6 mmHg. Nearly half (50.7%, n=73) of those screened had raised random blood sugar. Approximately 19% (n=41) of the individuals reported to have diagnosed Type 2 diabetes and hypertension and were on treatment.

Conclusion: This study found a high percentage of individuals with increased blood sugar and blood pressure, ascertaining the need of opportunistic screening as a part of routine activity.

Keywords: Hypertension, Diabetes, Screening, NCD

Introduction

Type 2 diabetes and hypertension, both are on increasing trend in India due to major epidemiological transition. Both are responsible for immense morbidity and economic losses at family and the national level. According to National Family Health Survey (NFHS-4) the prevalence of diabetes was found to be 6.85% and hypertension as 8.5% in general population. Deaths resulting from non-communicable diseases are expected to increase their share of the total from 55 per cent in 1990 to 73 per cent in 2020.¹

Due to reasons like rapid urbanisation, adopting sedentary life style and an increase in the ageing population in India, the prevalence of both diabetes and hypertension is expected to increase further. It has been predicted that almost 87 million people in India will be having diabetes by the year 2030.² A better understanding and management of both diabetes and hypertension, which can be done by dietary changes and lifestyle modifications, would also help in reducing cardiovascular mortality in India. In addition, both these conditions are comorbid. The prevalence of hypertension is 1.5 to 2.0 times more in those with diabetes than in those without diabetes, whereas almost one-third of the patients with hypertension develop diabetes later.³

It has been found that approximately half of the people with diabetes and hypertension remain undiagnosed and untreated, and may develop complications during that time. Timely diagnosis, which can be achieved through screening and treatment along with compliance in patients with diabetes and hypertension, can prove to be a turning point in the course of the disease. There are a number of factors that affect the prognosis of both the diseases, but some of the major factors remain treatment compliance and prevention of complications.

However, primary prevention strategies, like screening would play a pivotal role in controlling this global epidemic. All attempts should be made to detect the problem as early as possible beside risk factor reduction. The present study was carried out with the objective to screen all the individuals attending public camp for Type 2 diabetes and hypertension and find out their treatment compliance if already diagnosed.

Methods

An opportunity was created while running a screening facility organised by Bahujan Ekta Manch in collaboration with Rashtriya Samagra Vikas Sangh, (RSVS) on the occasion of Ambedkar Jayanti 14th April, 2019 in Delhi. One of the objectives of RSVS is creating free and holistic healthcare system.

All individuals attending the screening camp, who gave their consent and were 30 years or more of age were

included in the study. Blood pressure was measured three times by automated electronic device (Omron HEM) with individual sitting comfortably on the chair. Average of the three readings was taken for final recording. Random blood sugar was also measured for all the participants using glucometer under safety precautions. History of known case of diabetes and hypertension was collected. Questions on whether they were on treatment and adhered to it were also asked. All those who were found to have high blood pressure and increased random blood sugar were referred to the nearest hospital for confirmation of diagnosis by fasting post-prandial blood glucose or measurement of HBA1C in case of diabetes and blood pressure charting in case of hypertension as well as for starting of treatment.

Participants were diagnosed as having raised blood sugar when random blood sugar was more than or equal to 140 mg/dL.⁴ Raised blood pressure was labelled when systolic blood pressure was more than equal to 140 mmHg or diastolic blood pressure was more than or equal to 90 mmHg.⁵

The data was entered in a master sheet on MS Excel and later transferred from MS Excel to SPSS licensed Software version 20.0 for analysis. Simple tables and cross tables were made to present the data.

Result

A total of 214 individuals attended the camp and were screened for Type 2 diabetes and hypertension. There were 78% (n=167) males and 22% (n=47) females among the screened individuals.

Table 1. Distribution of study participants according to measured blood pressure

Blood pressure		Number	Percentage (%)
Systolic	<140	117	73
	141–160	32	20
	>161	15	7
Total		160	100
Diastolic	<90	107	67
	91–100	30	19
	>101	23	14
Total		160	100

Complete blood pressure recording was made for 160 individuals. For 54 participants either one or two readings were missing. Around one third (27%) of the screened individuals had raised systolic blood pressure and 33% had raised diastolic blood pressure. The mean systolic blood pressure was 130.49±21.7 mmHg and mean diastolic blood pressure was 85.72± 12.6 mmHg.

Table 2. Distribution of study participants according to measured random blood sugar

Random blood sugar (mg/dL)	Frequency	Percentage
<140	71	49.3
>140	73	50.7
Total	144	100

Table 2, shows random blood sugar of 144 individuals. For 70 participants, blood sugar testing was not done due to various reasons. Nearly half (50.7%) of those screened had raised random blood sugar.

Approximately 19% (n=41) of the individuals reported to have already diagnosed Type 2 diabetes and hypertension and were currently on treatment.

Discussion

Out of the total 214 individuals, the proportion of males and females was 78% and 22% in the current study. Similar results were found in a study conducted by Dyavarishetty⁶ et al. in Mumbai where males comprised 79% of the sample and females 21%. Although in a study⁷ conducted for screening at a workplace in India, the representation of males in the sample was 39% and that of females was as high as 61%, this can be explained due to wide difference in the study setting.

In this study 27% of the participants had raised systolic blood pressure and 33% had raised diastolic blood pressure. Slightly lower prevalence was found in a community-based screening in Kenya, conducted by Pastakia et al.,⁸ where 18% had raised systolic blood pressure and 15% had raised diastolic blood pressure. This difference can be due to difference in prevalence rates of the two countries and also due to screening done in the community-based setting. Ketkar et al.⁷ has found in their study that the prevalence of hypertension was 13% in individuals in healthcare setting. Geldsetzer et al.⁹ found 26.5% prevalence of hypertension in their study carried out across India.

The mean systolic and diastolic blood pressure in the current study was 130.49±21.7 and 85.72± 12.6, respectively. Joshi et al.¹⁰ in their study at the national level in India found the mean systolic and diastolic BP of patients as 128.8±15.9 mmHg and 82.5±8.9 mmHg, respectively, which is little less than the results of the current study. Also, similar results were found in a study⁸ conducted in Kenya for screening of diabetes and hypertension, in which the mean systolic blood pressure was 125±19.28 and diastolic was 77±13.

Approximately half (50.7%) of the screened individuals were found to have raised blood sugar in the present study. Screening India's Twin Epidemic (SITE) study¹⁰ found

similar results, where prevalence of diabetes was 34.7%. Contrasting results were found in western Kenya,⁸ where prevalence of diabetes was 23% and also the prevalence was only 7.6% in a national representative study conducted in India.⁹

There were many limitations of the study: screening in a mela or event may not be suitable place to detect the prevalence. The individuals could only be diagnosed as having raised blood sugar or raised blood pressure, as these are not the confirmatory tests. Only those who have higher risk of developing disease prefer to be tested to rule out their apprehension. It could be the reason for higher percentage of individuals with raised blood sugar and blood pressure in the study.

Conclusion

This study found a high percentage of individuals with increased blood sugar and blood pressure, ascertaining the need of opportunistic screening as a part of routine activity. Such screening camps help in identification of disease burden as well as in providing adequate referral linkage in order to facilitate early diagnosis and treatment and thus promoting secondary prevention as well.

It is recommended that such opportunistic screening may be carried out at regular intervals, and appropriate follow up of the referred individuals should be carried out particularly for non-communicable diseases.

Ethical Clearance: The study has been done by the data collected after a screening health camp. While screening, consent was taken from each individual and the tests were done by each subject's willingness. We have analysed the data that was hence collected. Therefore no ethical clearance has been taken.

Conflicts of Interest: None

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