ORIGINAL ARTICLE

Opportunistic Screening for Hypertension and Diabetes in Individuals ≥25 Years attending Outpatient Department at the Urban Health Training Center of K.J. Somaiya Medical College, Sion, Mumbai

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ABSTRACT

Context: India is experiencing a rapid health transition with a rising burden of noncommunicable diseases, especially, hypertension and diabetes, causing a loss in potentially productive years of life. These diseases are slow in onset, and, in the initial phase, the individuals are asymptomatic. Early detection and management of these conditions lead to prevention of morbidity and mortality. There is an opportunity to screen individuals in a health care setup when they seek treatment for their common ailments.

Materials and methods: It was a cross-sectional study. Opportunistic screening for hypertension and diabetes was carried out for individuals attending the outpatient department of the urban health training center.

Results: Out of 470 screened for hypertension, 34 (7.23%) individuals were newly diagnosed as hypertensive and out of 492 screened for diabetes, 11 (2.24%) individuals were newly diagnosed as diabetic.

Conclusion: Opportunistic screening helps in early diagnosis of hypertension and diabetes.

Keywords: Diabetes, Hypertension, Screening.

INTRODUCTION

India is experiencing a rapid health transition with a rising burden of noncommunicable diseases, especially, hypertension and diabetes. Both these diseases show an iceberg phenomenon. Both these diseases can be detected early by means of screening. The national health program for prevention and control of cancer, diabetes, cardiovascular diseases, and stroke focuses on the health promotion, early diagnosis, and management of these diseases with integration with the primary health center. One of the components of this health program is opportunistic screening of persons for hypertension and diabetes in subcenters, primary health centers, community health centers, and district centers.[1]

Taking a note of this, the Department of Community Medicine took the initiative of conducting opportunistic screening of individuals attending the outpatient services at the urban health training center located at Pratiksha Nagar, Sion, Mumbai, Maharashtra, India.

RESEARCH QUESTION

What is the proportion of individuals with undetected hypertension and diabetes, attending the outpatient department (OPD) at the urban health training center of K.J. Somaiya Medical College and Research Centre at Pratiksha Nagar, Sion, Mumbai, Maharashtra, India?

AIM

To estimate the proportion of individuals with undetected hypertension and diabetes, attending OPD at the urban health training center of K.J. Somaiya Medical College and Research Centre at Pratiksha Nagar, Sion, Mumbai, Maharashtra, India.

MATERIALS AND METHODS

Study design: A cross-sectional study.

Study setting: The urban health training center of the Department of Community Medicine is located at Pratiksha Nagar, Sion, Mumbai, Maharashtra, India. The center caters to the urban slum population of Pratiksha Nagar, viz., Almeda Compound, Shastri Nagar, and Panchsheel Nagar. Outpatient services are available in the center. The average OPD attendance per day is approximately 40 to 50.

Study subjects: Patients ≥25 years attending the OPD at the urban health center of the Department of Community Medicine located at Pratiksha Nagar, Sion, Mumbai, Maharashtra, India.

Exclusion criteria: Known cases of hypertension and diabetes.

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Study period: June 2016 to October 2016.

Sample size: 518 individuals.

The Department of ComWmunity Medicine conducts opportunistic screening of individuals attending the outpatient services at the urban health training center located at Pratiksha Nagar, Sion, Mumbai, Maharashtra, India. This screening was started in October 2014 in the OPD. Data were obtained from the records maintained in the "opportunistic screening register" at the urban health training center (record from October 2014–April 2016). After addressing the felt need of the individual, he/she was informed about opportunistic screening being carried out for detection of hypertension and diabetes. Consent was implied. An individual who was a known case of hypertension was screened for diabetes, and an individual who was a known case of diabetes was screened for hypertension. Anthropometry measurements, i.e., height and weight were taken. Then, the individual was subjected to blood pressure checkup and random blood sugar (RBS) checkup. Three blood pressure readings were taken at an interval of 2 minutes and the average of the last two readings was considered. The address and contact number of the patient was noted down. A note was also made in the OPD paper that the patient had undergone opportunistic screening. A stamp was designed for this purpose. The stamp also helped the staff for identifying individuals who had been subjected to opportunistic screening.

Individuals detected with raised blood pressure were advised to follow-up for 3 consecutive days for blood pressure checkup at the urban health center or a facility of their choice for confirmatory diagnosis of hypertension. Similarly, individuals detected with raised blood sugar were advised to undergo fasting and postprandial blood sugar investigation. To ensure follow-up, individuals were given reminders either by phone calls or home visits. The individuals detected with hypertension and/or diabetes was referred to the medicine OPD of the institute for further management.

Equipment: Blood pressure was measured by the digital apparatus OMRON HEM 7203 model. Blood sugar level was measured by dry chemistry glucometer strips of the CONTOUR TS Bayer Company.

Guidelines

For taking anthropometric, blood pressure, and RBS measurements, the training and practical guidelines given in the STEPS approach by the World Health Organization (WHO) were followed.[2]

Operational Definitions

Raised blood pressure: An individual who was detected with blood pressure ≥140/90 mm Hg.[3]

Raised blood sugar: An individual whose RBS level was ≥140 mg/dL.[4]

Known case of hypertension, diabetes: An individual diagnosed as hypertensive and/or diabetic by a doctor.

Classification

The Joint National Committee (JNC) VII criterion was used to classify blood pressure. Classification of obesity was done according to body mass index (BMI) recommended by the WHO.[3]

Statistical Analysis

The data were entered in Microsoft Excel and analyzed. The frequency and proportions were calculated.

RESULTS

Overall, 518 individuals underwent opportunistic screening. About 183 (35.33%) were males and 335 (64.67%) were females. Table 1 shows the distribution of individuals according to the age. Table 2 gives the summary of the variables. Table 3 shows the distribution of individuals according to the BMI and blood pressure. Table 4 shows the distribution of individuals according to the BMI and blood sugar.

Out of 518 individuals, 48 were known cases of hypertension. Thus, out of 470 individuals screened for hypertension, 150 (31.91%) individuals were with prehypertension and 100 (21.28%) individuals were detected with raised blood pressure. Out of these 100, 59 (59%) individuals followed up at the urban health center or a facility of their choice. Out of these 59 individuals, 34 (57.63%) individuals were diagnosed as hypertensive

Table 1: Distribution of study subjects according to age and gender

Age groups	Male No. (%)	Female No. (%)
25–34	42 (22.83)	87 (25.97)
35–44	46 (25)	80 (23.88)
45–54	53 (28.80)	62 (18.21)
55–64	21 (11.41)	61 (18.21)
65 years and above	16 (8.70)	33 (9.85)
No data	6 (3.26)	12 (3.58)
Total	184 (100)	335 (100)

Table 2: Summary of variables

Variables	Summary Mean ± 2 (SD)
Age (years)	44.86 ± 2 (13.10)
BMI	23.02 ± 2 (4.91)
Systolic blood pressure (mm Hg)	124.44 ± 2 (20.07)
Diastolic blood pressure (mm Hg)	77.10 ± 2 (11.82)
RBS (mg/dL)	111.23 ± 2 (52.26)

Table 3: Distribution of individuals according to BMI and blood pressure

	Male				Female			
	Normal	Prehypertension (HT)	Raised	Total	Normal	Prehypertension (HT)	Raised	Total
BMI	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
<18.50	17 (45.95)	12 (32.43)	8 (21.62)	37 (100)	23 (71.88)	5 (15.63)	4 (12.5)	32 (100)
18.50–23.00	18 (32.73)	16 (29.09)	21 (38.18)	55 (100)	62 (62)	21 (21)	17 (17)	100 (100)
≥23.00–<27.50	9 (23.08)	17 (43.59)	13 (33.33)	39 (100)	44 (53.01)	27 (32.53)	12 (14.46)	83 (100)
≥27.50	3 (23.08)	5 (38.46)	5 (38.46)	13 (100)	20 (43.48)	20 (43.48)	6 (13.04)	46 (100)
Missing data	7 (31.81)	13 (59.09)	2 (9.09)	22 (100)	18 (41.86)	14 (32.56)	11 (25.58)	43 (100)

Table 4: Distribution of individuals according to BMI and blood sugar

	Male			Female		
	Normal	Raised RBS	Total	Normal	Raised RBS	Total
BMI	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
<18.50	34 (91.89)	3 (8.11)	37 (100)	32 (94.12)	2 (5.88)	34 (100)
18.50–23.00	49 (83.05)	10 (16.95)	59 (100)	89 (91.75)	8 (8.25)	97 (100)
≥23.00–<27.50	31 (73.81)	11 (26.19)	42 (100)	84 (90.32)	9 (9.67)	93 (100)
≥27.50	11 (78.57)	3 (21.43)	14 (100)	43 (84.31)	8 (15.69)	51 (100)
Missing data	22 (91.67)	2 (8.33)	24 (100)	37 (90.24)	4 (9.76)	41 (100)

Flow Chart 1: Algorithm showing the distribution of individuals according to classification of blood pressure and follow-up
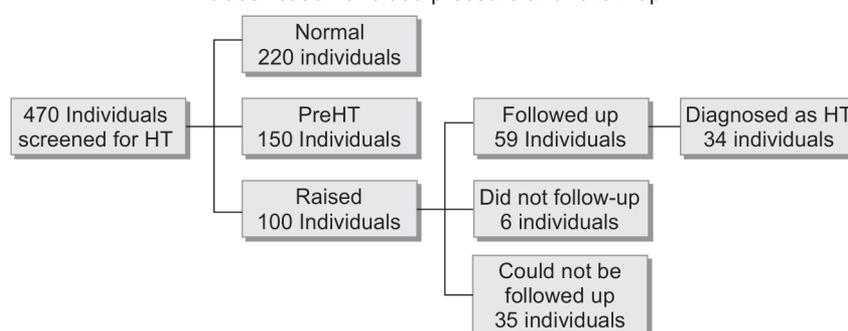
Flow Chart 2: Algorithm showing the distribution of individuals according to classification of RBS and follow-up
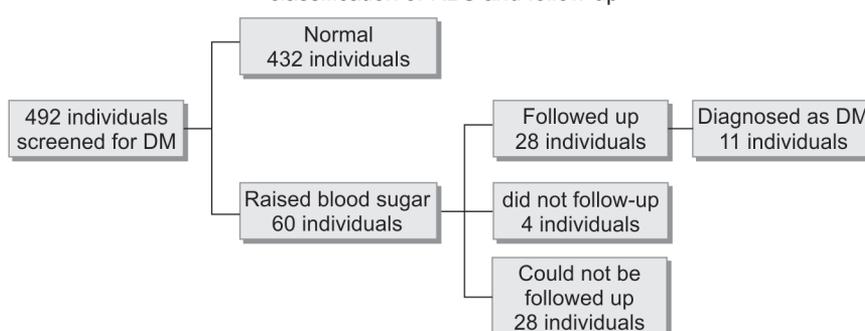
and started on treatment (Flow Chart 1). Out of these 34 individuals, 10 individuals had family history of hypertension; data was not available for 7 individuals, and the rest 17 individuals had no family history of hypertension. About 6 individuals did not follow-up. About 35 individuals could not be followed up either by phone call or home visits, as the residential area was out of the field practice area of the department or the phone numbers were not available.

Out of 518 individuals, 15 were known cases of diabetes. About 4 individuals refused to undergo RBS checkup, and the data were missing for 7 individuals. Thus, out of 492 individuals screened for diabetes, 60 (12.20%) individuals were detected with raised blood sugar. A total of 28 (46.67%) individuals followed up at the urban health center or a facility of their choice. Out of these, 11 (39.29%) individuals were diagnosed as diabetics and started on treatment (Flow Chart 2). Out of these

11 individuals, 3 individuals had a family history of diabetes, 6 individuals did not have any family history, and for 2 individuals, data on family history were not available. A total of 28 individuals could not be followed up either by phone call or home visits, as there was no response. About 4 individuals did not follow-up. About 6 individuals detected with raised blood pressure and 4 individuals detected with raised blood sugar did not follow-up for confirmatory diagnosis at the health center or a facility of their choice in spite of giving two reminders through phone calls and/or home visits.

DISCUSSION

In this study, 33 individuals were diagnosed with hypertension and 9 individuals with diabetes. Newly diagnosed hypertensive cases in the present study were less (7.23%) as compared with the study carried out by Majumdar et al[5] in Puducherry, where out of 324 participants screened, newly diagnosed hypertension cases were 17.9% (58/324).

Newly diagnosed diabetic cases (2.24%) were also less as compared with the study carried out by Venugopal et al[6] in Puducherry, where out of 400 screened for RBS, 18 (4.5%) individuals were newly diagnosed as diabetics.

The percentage of prehypertensive cases (31.91%) was less as compared with 40.5% as detected in a study carried out by Singh et al[7] in Himachal Pradesh.

The follow-up rates (46.67%) were less as compared with 85.7% in an opportunistic screening study for detecting type 2 diabetes conducted by Kumar et al[8] in Puducherry district, where mobile reminders were given for individuals detected with raised blood sugar.

A similar study was carried out by Yusufali et al[9] in shopping malls in Dubai to detect the undiagnosed cases of hypertension and diabetes. The percentage of newly diagnosed diabetes and hypertension in this study was less as compared with the SITE study carried out by Joshi et al,[10] which found that among those whose disease status of diabetes was not known, 7.2% (793 of 11,028) patients were newly diagnosed with diabetes and among those whose disease status of hypertension was not known, 22.2% (2,408 of 10,858) patients were newly diagnosed with hypertension. Screening is one of the pathways in preventing and controlling hypertension. There is high prevalence of hypertension in India; hence, assessment of blood pressure in adults at every opportunity is justifiable.[11] A study conducted by Ramachandran et al[12] showed that the majority of people presenting with newly diagnosed diabetes are asymptomatic. Hence, opportunistic screening of asymptomatic individuals would be required to detect the majority of people with currently undiagnosed diabetes, and should be considered as part of a medical checkup for unrelated conditions.

CONCLUSION

Opportunistic screening helps in early diagnosis of hypertension and diabetes. In India, many individuals seek health care services only when they have symptoms. The individuals need to be educated about the importance of screening as well as importance of follow-up visits for confirmatory diagnosis. Poor health care seeking behavior of the individuals affects the outcome of screening programs. Barriers need to be addressed to improve the outcome of screening. First and foremost, the individuals need to be made aware of the silent nature of these disease conditions emphasizing the fact that many individuals are asymptomatic in the initial phase of the disease and importance of early detection of these conditions helps in early management thus, avoiding or reducing the complications of the disease. Second, after screening, the importance of follow-up for confirmatory diagnosis also needs to be emphasized.

LIMITATIONS

Many individuals could not be contacted as the phone numbers were not available and/or their place of residence was not from the field practice area of the department.

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