POINT PREVALENCE OF HYPERTENSION AND DIABETES MELLITUS IN A HEALTH CAMP AT BASHABO, DHAKA

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Abstract: *The non-communicable diseases like hypertension and diabetes are emerging as a major health problem in Bangladesh. The main objective of the present study is to determine the prevalence rate and risk factor associated with DM and hypertension (HTN) in a health camp at Bashabo in Dhaka among 174 respondents;(64.37% were male and 35.63% were female) maximum 59.77% having normal blood glucose level;22.41% respondents have DM and only 17.81% have IGT. Pre-Hypertensive respondents were 18.39%; Stage 1 is 12.64% and Stage2 is* 8.04%. *Obesity and overweight respondents have risk of both Hypertension, and Diabetes Mellitus.*

Keywords: *Hypertension (HTN), prevalence, BMI(Body Mass Index),Diabetes mellitus (DM), Cardio vascular disease (CVD)*

Introduction

Hypertension (HTN) and Diabetes mellitus (DM) are the most common non-communicable chronic diseases in developed and developing countries around the world. The study reports the prevalence of DM and HTN and its influence from its possible risk factors[1].Body mass index (BMI), is a measure of relative weight based on an individual's mass and height. BMI ranges are based on the relationship between body weight and disease and death. Overweight and obese individuals are at increased risk for many diseases and health conditions hypertension and diabetes[2]. The term DM describes a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion or insulin action or both and continues to increase in numbers and significance, as changing lifestyles lead to reduced physical activity, and increased obesity[3]. The prevalence of type 2 DM have raised from 1.2% to 11% over last three decades[4]. In Bangladesh, with a population of 149.8 million in 2011, a recent meta-analysis showed that the prevalence of diabetes among adults had increased substantially, from 4% in 1995 to 50% in 2000 rose to 9% in 2011. HTN is considered to be one of the most common causes of morbidity and mortality affecting mankind[5]. HTN exhibits an iceberg phenomenon where unknown morbidity exceeds the known morbidity[6-8]. The prevalence of HTN is rapidly increasing in developing countries and is said to be one of the leading causes of death and disability among the elderly[9-10]. Prevalence of hypertension was found to be 17% in chronic morbidity survey of Bangladesh. The objective of the present study is to determine the prevalence rate and risk factor associated with DM and

hypertension (HTN) to identify individual, household and community factors associated with the conditions in Bashabo area, Dhaka.

Materials and Methods

A cross- sectional study was performed in a health camp at Bashabo in Dhaka city. The presence of the respondents was assured through the day long announcement in the locality. Total study population was 174, whose Blood pressure, Body weight, Height, Blood glucose level was measured by skilled health care practitioner. Every respondent consulted with doctors about their health condition and face to face interview was helped to make concern about the threat of Diabetes Mellitus. Among 174 respondents 112 was male and 62 was female. Prehypertension stage 1, stage 2 were defined according to WHO and JNC hypertension guideline. WHO classification of DM was used to interpret results of blood glucose status.

Result

Impaired glucose tolerance (IGT) is a pre-diabetic state of hyperglycemia that is associated with insulin resistance and increased risk of cardiovascular pathology. In the table 1shows among the total respondents (64.37% were male and 35.63 % were female) maximum 59.77% having normal blood glucose level 22.41% respondents have DM and only 17.81% have IGT.

Table 1: Distribution of Age, Sex and Blood Glucose Status of the respondents

Age	Male	Female	Normal	IGT	DM
<40	19	24	34	3	6
41 - 50	32	20	27	12	13
51 - 60	32	13	22	10	13
>60 / 60+	29	5	21	6	7
Total	112	62	104	31	39
%	64.37	35.63	59.77	17.81	22.41

From the table 1 it is shown that 59.77% is normal, 17.81% having 1GT and 22.41% have diabetes mellitus (DM).

Figure 1: Level of blood glucose with age

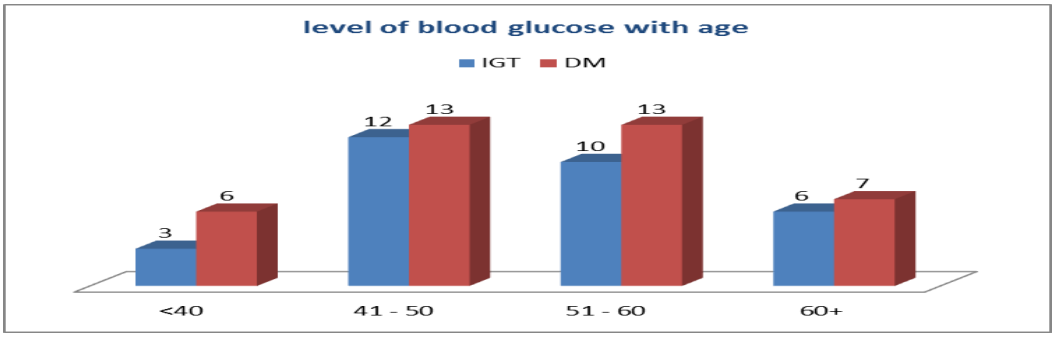

Figure 1 shows age range 40-60 years are at high risk of Diabetes Mellitus.

Table 2: Distribution of Blood Pressure Status among male and female of the respondents

age	Male	Female	Normal (120 - 80)	Pre – Hypertensive (100-139:-81-90)	Stage 1 (140-159:-90-100)	Stage 2 (>160: >100)
<40	19	24	27	9	6	1
41-50	32	20	31	9	8	5
51-60	32	13	28	8	4	5
>60	29	5	21	6	4	3
Total	112	62	106	32	22	14
%	64.37	35.63	60.91%	18.39	12.64	8.04
				Total : 39.07		

Table 2 shows among the total respondents 60.07% have not hypertension, Pre-Hypertensive (100-139:-81-90) respondents were 18.39%, Stage 1(140-159:-90-100) 12.64% and Stage (>160->100) and total 39.07 % are in risk.

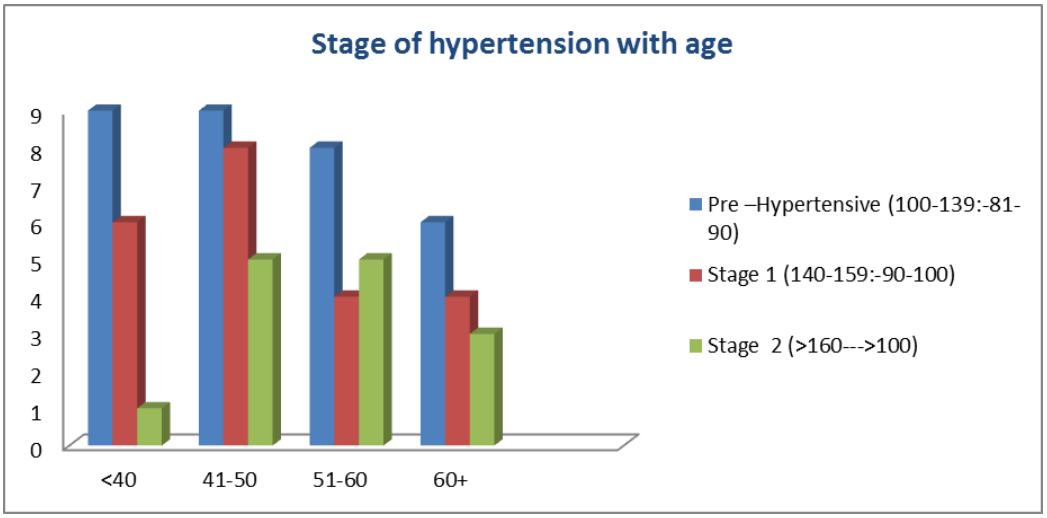

Table 3: Blood Glucose among male and female

Age	Total	Normal	Male	Female	IGT	Male	Female	DM	Male	Female
<40	43	34	19	15	3	1	2	6	1	5
41-50	52	27	18	9	12	8	4	13	7	6
51-60	45	22	17	5	10	6	4	13	9	4
>60/60+	34	21	18	3	6	5	1	7	5	2
%			64.28	51.61		17.85	17.41		19.64	27.41

Table 3 shows 64.28% male and 52.61% female have normal blood glucose level. Percentage of IGT both male and female are almost same but women are at high risk in case of DM.

Table 4: Hypertension among male (M) and female (F)

Age	Total	Normal	M	F	Pre-HT	M	F	Stage 1	M	F	Stage 2	M	F
<40	43	27	10	17	9	6	3	6	3	3	1		1
41-50	52	31`	18	13	9	6	3	7	5	2	5	3	2
51-60	45	28	21	7	8	4	4	4	3	1	5	3	2
>60	34	21	14	7	6	4	2	4	2	2	3	2	1
%			56.2	60.9		17.8	19.3		11.6	14.5		7.1	9.6

Table 4 shows that in case of prehypertension, stage1, and stage 2, female respondents are at high risk than male respondents.

Table 5: Relation between BMI and Hypertension

BMI	BMI of Respondents	Normal	Pre-HTN	Stage 1	Stage 2
Underweight: < 18.5	59	48	9	1	1
Normal weight: 18.5 - 24.9	70	45	14	7	4
Overweight: 25 - 29.9	34	10	6	11	7
Obese: ≥ 30	9	1	3	3	2
Total	172	104	32	22	14

From the above table it is shown that pre, stage 1 and stage 2 hypertension are more in the overweight and obese group.

Table 6: Relation between BMI and Diabetes Mellitus.

	Underweight: < 18.5	Normal weight: 18.5 - 24.9	Overweight: 25 - 29.9	Obese: ≥ 30
Normal	58	39	3	1
DM	2	4	16	5
IGT	6	15	15	3

Table 6 shown than both Diabetes Mellitus and IGT falls in the overweight and obese group.

Discussion

According to the International Diabetes Federation, the prevalence of diabetes will be 13% of total population by 2030[11]. From the above study among the total respondents (64.37% were male and 35.63 % were female) maximum 59.77% having normal blood

glucose level 22.41% respondents have DM and only 17.81% have IGT. Among the total respondents 60.07% have no hypertension. Pre-Hypertensive respondents were 18.39%, Stage 1; 12.64% and Stage2 and total 39.07 % are in risk. Table 3 shows 64.28% male and 52.61% female have normal blood glucose level. Percentages of IGT both male and female are almost same but women are at high risk in case of DM. Hypertension (HTN) is an increasingly important public health problem. In Bangladesh, approximately 20% of adult and 40-65% of elderly people suffer from HTN. In the NCD risk factor survey conducted in Bangladesh in 2010, the overall prevalence of hypertension was estimated to be 17.9% for the whole country (19.9% in urban and 15.9% in rural areas) among the population aged 25 years and above[12]. High incidence of metabolic syndrome, lifestyle-related factors like obesity, high salt intake and less physical activity may play important role in the pathophysiology of HTN. Worldwide, about 58% of diabetes mellitus and 21% of ischaemic heart disease are attributable to BMI above 21 kg/m^2 [13-14]. High blood pressure is one of the risk factors for cardiovascular diseases, and the estimated 7.1 million deaths especially among middle, and old-age adults is due to high BP[15].

Conclusion

A high prevalence of diabetes, impaired glucose regulation and hypertension exists throughout Bangladesh and it seems to be associated with obesity, improper diet, disease and environmental factors. Considering Bangladesh, as a developing country where the state of affairs warrants immediate control measures necessary to prevent the epidemic particularly in the localities that are in the transition phase from rural to urban areas for a better society.

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