



The Incident of Heart Diseases in Hypertension in Bangladesh

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Abstract

Introduction: For cardiovascular disease (CVD), hypertension is the strongest risk factor.

Objective: In this study our main aim is to discover the incident of heart diseases in hypertension of hypertension in Bangladesh.

Method: This cross-sectional study was conducted at different private hospital in Khulna from January 2015 to January 2016 where 530 rural and urban individuals (age ≥ 21 years) were evaluated and all data was recorded methodically in a preformed data sheet and was analyzed by relevant statistical procedures.

Results: in the study 99 male and 64 female belongs to hypertension group. Also, age and heart diseases strongly correlated with hypertension.

Conclusion: we can conclude that in Bangladesh patients with hypertension is prone to have heart diseases. More studies are suggestive to estimate the incidence of hypertension in heart diseases.

Keywords: Cardiovascular disease (CVD), Hypertension, High blood pressure.

Introduction

Hypertension (HTN or HT), also recognized as high blood pressure (HBP), which is a long-term medical disorder in which the blood pressure in the arteries is persistently elevated. High blood pressure typically does not cause symptoms. High blood pressure is classified as either primary (essential) high blood pressure or secondary high

blood pressure. Around 90–95% of cases are primary, defined as high blood pressure due to nonspecific lifestyle and genetic factors. Lifestyle factors that intensification the risk include excess salt in the diet, excess body weight, smoking, and alcohol use. The remaining 5–10% of cases are categorized as secondary high blood pressure, defined as high blood pressure due to an

identifiable cause, such as chronic kidney disease, narrowing of the kidney arteries, an endocrine disorder, or the use of birth control pills.^{[1][2]}

Blood pressure is stated by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. For most adults, normal blood pressure at rest is within the range of 100–130 millimeters mercury (mmHg) systolic and 60–80 mmHg diastolic. For most adults, high blood pressure is present if the resting blood pressure is persistently at or above 130/80 or 140/90 mmHg.

Ambulatory blood pressure one-to-one care over a 24-hour period appears more exact than office-based blood pressure measurement.^[2]

Hypertension is the top risk factor for death and disability internationally and disproportionately impacts low-and middle-income countries (LMICs), where more than two-thirds of people with hypertension live. In 2010, an assessed 9.4 million deaths and 162 million years of life were lost due to hypertension. Hypertension is the main cause for more than half of the cardiovascular diseases (CVD), stroke and heart failure and is a foremost risk factor for fetal and maternal deaths in pregnancy, dementia and renal failure. The occurrence of hypertension is growing worldwide and is predicted to affect more than 500 million people by 2025.^[3]

Lifestyle (modifiable)

Risk Factor

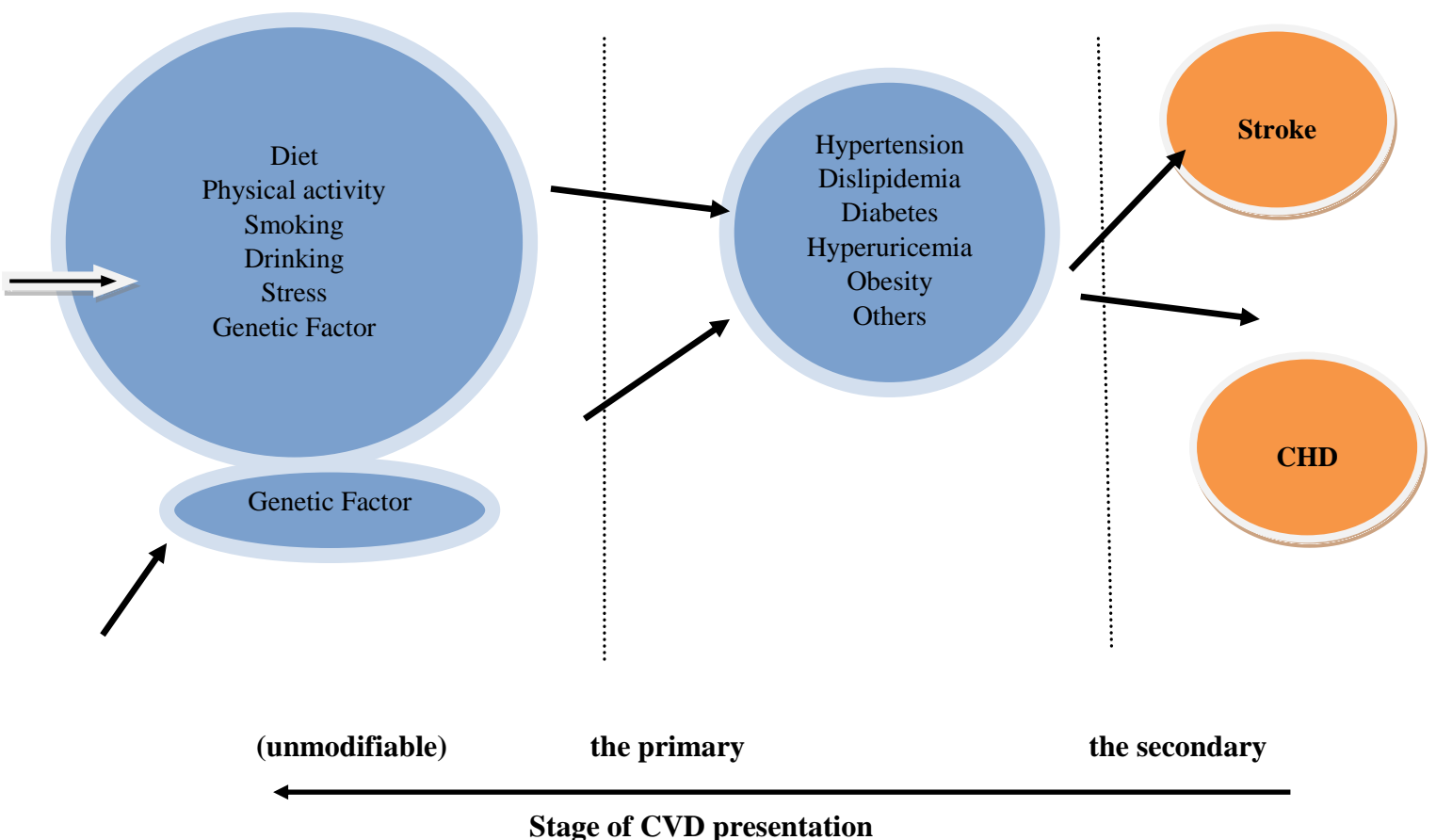


Figure-1: The progression from lifestyle changes to the incidence of hypertension and cardiovascular disease (CVD). CHD indicates coronary heart disease by scheme presentation ^[4]

Hypertension is a substantial community health challenge and has a main impact on healthcare costs, contributing to around 10% of total healthcare spending internationally. Hypertension imposes a thoughtful economic burden on individuals, households, healthcare systems and the entire state. In current years, hypertension and CVDs have increased in South-East Asia including Bangladesh as a result of rapid urbanization, increased life expectancy, unhealthy diet, and lifestyle fluctuations.^[3] In this study our main objective is to discover the incident of heart diseases in hypertension of hypertension in Bangladesh.

Objective

General Objective

- To evaluate the incident of heart diseases in hypertension of hypertension in Bangladesh.

Specific Objective

- To detect frequency of hypertension and non-hypertension in the patients.
- To estimate incidence of systolic and diastolic hypertension of all study patients.

Methodology

Study type

- This was a cross sectional study.

Study place and period

- This study was conducted from January 2015 to January 2016 at different private hospital in Khulna district.

Method

- A random sample of 530 rural and urban individual (age ≥ 21 years) were included in a cross-sectional study. All male and female ≥ 20 years of age were considered eligible except pregnant women and subjects on medication. The eligible participants were informed about the objectives of the study. After providing the informed consent, each interested individual was requested to attend the nearby health care center. Each participant's was interviewed for the status of physical activities, family history of

hypertension, diabetes, smoking, annual income etc were collected using modified WHO-STEPS protocol. Diagnosis of hypertension (WHO criteria): Grade 1 (mild) = 140-159/ 90-99 mm of Hg, Grade 2 (moderate) = 160-179 / 100-109 mm of Hg, Grade 3 (severe) = $\geq 180 / \geq 110$ mm of Hg.

Statistical Analysis

- All data was recorded methodically in a preformed data sheet and was analyzed by relevant statistical procedures with the windows software version 12.0. The prevalence rates of hypertension were determined by simple percentage. Unpaired t-test, chi-square tests were done to see the level of significance. All associations were tested by co-relation coefficient (r). Binary logistic regression was used to quantify the individual risk prediction of hypertension with different independent risk factors. All statistical test were considered significant at the level of 95% ($p < 0.05$)

Result

In table-1 shows age distribution of the patients where for both male and female, most of the patients belongs to (41-50) age group. The following figure is given below in detail:

Table-1: Age distribution of the patients

Age group	Male, %	Female, %
21-30	5%	4.9%
31-40	8%	8.1%
41-50	56%	53%
51-60	21	22
61-70	10%	12%

In figure-2 shows gender distribution of the patients were among 530 patents male patients were 18.1% higher than female. The following figure is given below in detail:

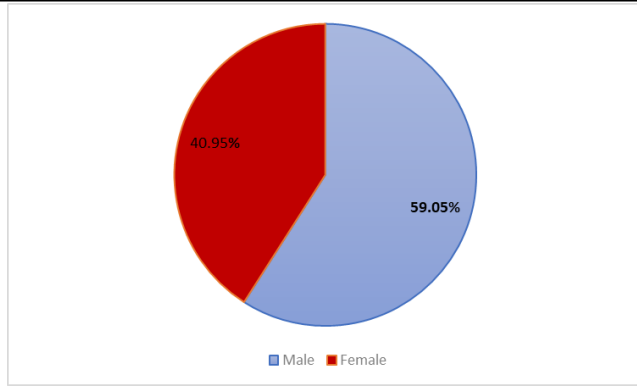


Figure-2: Gender distribution of the patients

In figure-3 shows the frequency of hypertension and non-hypertension in the patients were out of 530 patients 99 male and 64 female belongs to hypertension group. The following figure is given below in detail:

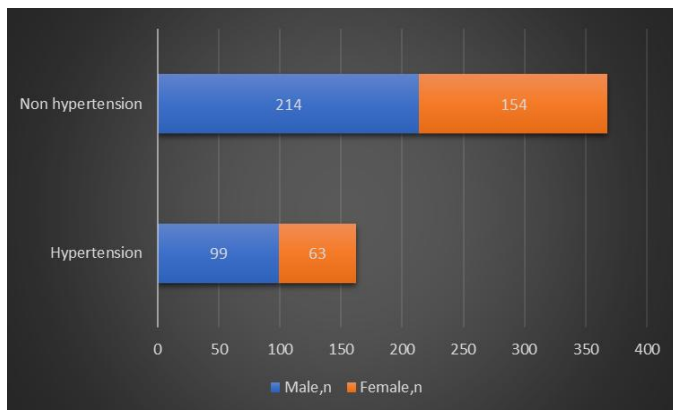


Figure-3: The frequency of hypertension and non-hypertension in the patients

In table-2 shows the incidence of systolic and diastolic hypertension of all study patients, where among total 530 patients, systolic hypertension were 25.81% whereas diastolic hypertension 30.61%. The following table is given below in detail:

Table-2: The incidence of systolic and diastolic hypertension of all study patients.

Group	%
Systolic hypertension	25.81%
Non systolic hypertension	74.1%
Total	100%
Diastolic hypertension	30.61%
Non diastolic hypertension	69.3%
Total	100%

In figure-4 shows distribution of patients according their living place where 51% people

lived in rural area where as 49% people in urban area. The following figure is given below in detail:

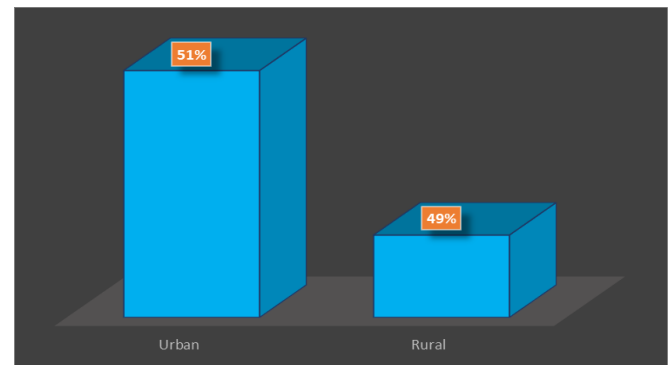


Figure-4: Distribution of patients according their living place

In table-3 shows Correlation of hypertension with family history, smoking, occupation, physical activity, annual income, obesity, BMI, Gender, heart diseases and age in patients where we found that mostly age and heart diseases strongly correlated with hypertension than other variable. The following table is given below in detail:

Table-3: Correlation of hypertension with family history, smoking, occupation, physical activity, annual income, obesity, BMI, Gender, heart diseases and age in patients

Correlation of hypertension with	r-value	p-value
Family history	-.228	<0.01
Smoking	-.126	<0.01
Income	-.131	<0.01
Occupation	.009	>0.05
Physical activity	-.141	<0.01
Obesity	-.284	<0.01
BMI	.276	<0.01
Gender	-.023	>0.05
Age	-.286	<0.01
Heart diseases	-.287	<0.01

In figure-4 shows relation of diastolic blood pressure stratified by total cholesterol level to 6-year incidence of coronary heart disease events in the Framingham Heart Study where a more dramatic rise in CHD event risk with DBP among those with higher cholesterol levels. The following figure is given below in detail:

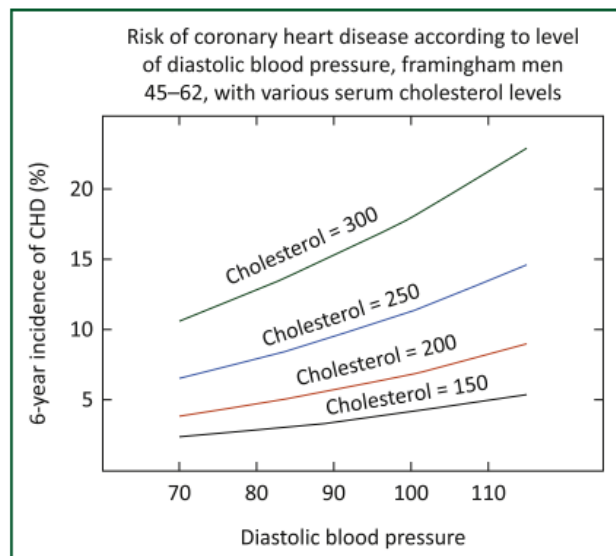


Figure-5 : Relation of diastolic blood pressure stratified by total cholesterol level to 6-year incidence of coronary heart disease events.^[5]

*Source by:

<https://www.banglajol.info/index.php/BHJ/article/view/32379>

Discussion

In this cross-sectional study, our goal was to discover the incident of heart diseases in hypertension of hypertension in Bangladesh. Hypertension, is the strongest risk factor for cardiovascular disease (CVD) or heart diseases.

In our study, the blood pressure was measured in all study patients where we found that the blood pressure was statistically significantly higher in hypertension as compared with non-hypertension. during the study we noted that the prevalence of hypertension observed in this study was higher than the previous study.^[6]

Hypertension is a major public health issue in Bangladesh, India and in other developing countries. Countries with an ageing population will be expected to have a higher prevalence of hypertension than developing countries with a younger population's such as Bangladesh, India, but there are studies, which have documented in developing countries, a high prevalence rate of hypertension^{[7][8]}. Our study also showed that with the increasing age gradually more subject with hypertension and that was similar with other finding.^[9]

In this study we detected that the frequency of hypertension in male was 99 and in female was 64 respectively. Though the prevalence rate was higher in male but there was no statistically significant difference between male and female. Our study showed that the hypertension prevalence was high among people with high obesity. The similar finding also observed in different studies done in different rural area of India. In this study we also observed that high prevalence of hypertension of patients with positive heart diseases and heart diseases. Also hypertension strongly correlated with each other, where different study supported our observation. In this study we also observed that high prevalence of hypertension of patients with positive heart diseases and heart diseases and hypertension strongly correlated with each other, where different study supported our observation.

During the study where among total 530 patients, we found that systolic hypertension was 25.81% whereas diastolic hypertension 30.61%. But one study reported that MI patients were more affected by high systolic blood pressure than diastolic blood pressure. It might be due to injury of endothelium by systolic blood pressure and thereby enhanced atherosclerosis. Elevated serum triglycerides, total cholesterol, and LDL had been well-established risk factors of cardiovascular disease.

Another study reported that extra salt intake along with age, BMI, physical inactivity, tobacco use and family history of stroke/CVD was found to have significant relationship with hypertension and pre-hypertension.^[5] Also, more than 35 million people in coastal Bangladesh are vulnerable to increasing freshwater salinization; elevated salinity in drinking water has been found to be associated with higher BP in young coastal populations. During the study we also found positive correlation with this report because in the study that most the patients from rural area, so they might unaware threatful effect of salinity in drinking water. The overall risk perception regarding excessive salt consumption is low and

there is widespread belief that the cooking process can render the salt harmless. High salt intake presumably contributes to hypertension, which is an established risk factor for CAD.^{[10][11]}

Conclusion

After several outcome, we can conclude that in Bangladesh patients with hypertension is prone to have heart diseases. More studies are suggestive to estimate the incidence of hypertension in heart diseases.

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