Care-seeking Behavior and Detection of Target Organ Involvement among Hypertensive Patients in Yangon Region (2014-2015)

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Hypertension is a major risk factor for cardiovascular diseases (CVDs) and hemorrhagic stroke due to hypertension is one of the leading causes of death in Myanmar. The aim of the study was for assessing knowledge, attitude, and practice related to hypertension among people with known history of hypertension who seek care in CVD clinics with public health care facilities in Yangon Region. A cross-sectional study was conducted from December 2014 to March 2015 among 622 hypertensive patients seeking care at 12 CVD clinics in Yangon Region. Data collection was done by the trained interviewers by using a pretested standard questionnaire and weight, height, ECG, blood pressure (BP) were measured. Capillary blood sampling was done with calibrated standardized machines. After cleaning of data, it was entered using Epidata software and analyzed using STATA. Over 90% of respondents were ≥40 years, female-male ratio was about 2:1, majority were married, had education of middle school or lower while annual household income varied from 200,000 to 300,000 kyats per month. At least 60% of the study population has the knowledge on ways of controlling BP and some common complications of hypertension such as stroke and heart attack. The respondents' household usually added salt in cooking or preparing food despite knowing the health risk of salty food. Most of the respondents had limited consumption of processed food. The majority of the respondents had lower than 5 servings of fruits and vegetables daily and were physically inactive. Over half of the respondents were overweight and their total blood cholesterol levels were high. About 7 in 10 respondents had uncontrolled BP although they were taking anti-hypertensive drugs regularly. The study showed that about 6 in 10 respondents had at least one target organ involvement due to hypertension (renal impairment or abnormal ECG changes). This study indicates the need for strong behavior change communication programs for hypertensive patients focusing on regular monitoring of blood pressure, reduction of dietary salt consumption, more consumption of fruits and vegetables, adoption of physically active life and control of body weight.

Key words: Hypertension, CVD risk, Target organ involvement

INTRODUCTION

Cardiovascular diseases (CVDs) are the leading non-communicable diseases (NCDs) category worldwide. CVDs include diseases of the heart, vascular diseases of the brain and diseases of blood vessels. The early half of the 20th century witnessed a rapidly growing epidemic of cardiovascular diseases as a result of industrialization, urbanization, increased prosperity, and social upheaval in the higher income countries. Therefore, CVDs are often thought to be problems of wealthy, industrialized nations. In fact, the epidemic of CVDs is a global health phenomenon nowadays. Over the past two decades, deaths from CVDs have been declining in high-income countries, but have increased at an astonishingly fast rate

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in low-and middle-income countries (LMIC). CVDs now have a major impact not only on developed nations but also on low- and middle-income countries, where it accounts for nearly 30 percent of all deaths.[1]

CVDs remain the leading cause of death in the world, far outstripping deaths due to malaria, HIV/AIDS, and tuberculosis.[2] Nearly half of the 36 million deaths due to NCDs are caused by CVDs.[3] The percentage of premature deaths from CVDs ranges from 4% in high-income countries to 42% in low-income countries, leading to growing inequalities in the occurrence and outcome of CVDs between countries and populations.

The increased prevalence of risk factors for CVDs and related chronic diseases in developing countries, including tobacco use, unhealthy dietary habit, reduced physical activity, increasing blood lipids, and hypertension, reflects significant global changes in behavior and lifestyle. These changes now threaten once low-risk regions, a shift that is accelerated by industrialization, urbanization, and globalization. The potentially devastating effects of these trends are magnified by a deleterious economic impact on nations and households, where poverty can be both a contributing cause and a consequence of chronic diseases.[1]

CVDs is now in a rising trend in South East Asia including Myanmar due to the increase in major cardiovascular risk factors in both urban and rural areas. Hypertension is a major risk factor of CVDs in Myanmar and hemorrhagic stroke due to hypertension is one of the leading causes of deaths in Myanmar. The sub-national survey on NCD risk factors done in Yangon Region in 2003 - 2004 showed that prevalence of hypertension in persons aged 20 years and above was 33.8%.[4] One survey also indicated that among hypertensive participants, a little more than half were aware of their hypertension and about one third were currently taking antihypertensive treatment, but only about one tenth had their blood pressure controlled.[4] The national survey on NCD risk factors in 2009 showed that the overall prevalence of hypertension in persons aged 15 years and above was 30%.[5] This national survey pointed out that, on an average, about 88% of males with raised blood pressure were not on medication and 8% still had high blood pressure even though they were on medication and about 75% of females with raised blood pressure were not on medication and 17% still had high blood pressure despite being on medication.[5]

In 2013, CVDs project of Myanmar conducted the survey on CVDs risk factors among 600 persons aged 40 years and above in 4 townships in lower Myanmar. This survey indicated that 52% of the respondents aged 40 year and above were hypertensive.[6]

Untreated or uncontrolled blood pressure leads to serious complications such as target organ involvement with resultant avoidable deaths or reduced quality of life. But the extent of target organ involvement and nature of care seeking pattern among hypertensive patients needs to be explored to formulate counter measures to prevent target organ involvement. So this study tried to depict the picture of care seeking pattern and target organ involvement among the hypertensive patients who sought care at CVDs clinics in Yangon Region.

MATERIALS AND METHODS

Study design and population

The facility-based cross-sectional design was used. The study was conducted with a representative sample of the adults with known history of hypertension who sought care from CVD clinics at public healthcare facilities in 12 townships from Yangon Region (Pazuntaung, Dagon, Kyauktada, Thongwa, North Okkalapa, Kyimyindine, Kamayut, Dawbon, Thanlyin, Latha, Lanmadaw and Dagon Myothit (North).

Sample size and sampling procedure

Renal insufficiency as target organ involvement of hypertension was regarded

as one of the main variables of this study and its level was used in determining the required sample size.

The sample size was calculated using the following formula.

N=Number of geographical regions x (1/1- non-respondent rate) x (Z_α^2 x P(1-P)/e^2)

N=Required sample size

Z_α=Z statistics for predetermined alpha error

P=The estimated prevalence of diabetes mellitus

e=Margin of error

P was set at 0.5 for the proportion of people with known hypertension who had renal insufficiency due to hypertension in Myanmar. Alpha error was set at 5%; so Z_α was 1.96. Margin of error (*e*) was set at 15%. Non-response rate was estimated to be 15%. Number of geographical regions was 4.

So, the required sample size for the whole survey was:

(1/1-0.15) x (1.96^2 x 0.5 (1-0.5)/0.05^2)=452

The respondents were recruited consecutively from those who sought care in CVD clinics which were regularly opened with 2 public health care facilities (3 township hospitals and 9 Urban health centers) in Yangon Region. The final total sample size added up to 622 persons.

Data collection

Data collection was done from December 2014 to March 2015. Data on socio-demographic characteristics, knowledge of hypertension, care seeking behavior for hypertension and risk behavior for cardio-vascular diseases and dietary salt intake were collected by the trained interviewers using a pretested standard questionnaire. Weight, height and blood pressure were measured with calibrated weighing machine, stadiometer and Omron blood pressure measuring device. Random capillary blood samples were tested for random blood glucose and total blood cholesterol and urine was tested for albumin on site, and ECG was also done on every patient.

Data management and analysis

For completeness and consistency, questionnaire overseen by supervisors were checked by the interviewers for data quality and validity. The data entry was done using Epi data software and analyzed by using STATA to describe the percent of the main outcome variables and 95% confidence interval and disaggregated by gender.

RESULTS

The study population included 622 adults aged 20 years and above from 12 townships. Over 90 percent of the respondents were aged 40 years and above and female-male ratio was about 2:1 in the study population. The majorities of the respondents were married and had education of middle school or lower. Most respondents' annual household income ranged from 200,000 to 3,000,000 kyats.

At least 60% of the study population knew the ways of controlling blood pressure. Table 1 shows that there was no appreciable difference in the level of knowledge on the ways of controlling blood pressure. Stroke and heart attacks were well-known complications of hypertension among the study population.

Table 1. Knowledge of hypertension

Knowledge of hypertension	Men (n=211)	Women (n=411)	Both sexes (n=622)	
	%	%	%	(95%CI)
Way of controlling blood pressure				
Reducing salt and salty food	80.1	87.1	84.7	(81.9 87.6)
Eating a balanced diet	66.8	64.0	65.0	(61.2 68.7)
Limiting alcohol	57.8	59.9	59.2	(55.3 63.0)
Doing regular exercise	73.0	68.1	69.8	(66.2 73.4)
Maintaining a healthy body weight	59.7	58.6	59.0	(55.1 62.9)
Avoiding tobacco use	60.7	60.8	60.8	(56.9 64.6)
Regular checkup of blood pressure	63.0	60.8	61.6	(57.7 65.4)
Taking medicine for treating high blood pressure as prescribed	64.5	64.5	64.5	(60.7 68.2)
Complications of uncontrolled high blood pressure				
Stroke	75.4	75.9	75.7	(72.3 79.1)
Heart attack	62.6	66.2	65.0	(61.2 68.7)
Kidney failure	46.0	47.7	47.1	(43.2 51.0)
Blindness	40.3	38.9	39.4	(35.5 43.2)
Irregularity of heart beat	34.6	35.0	34.9	(31.1 38.6)
Heart failure	36.5	36.0	36.2	(32.4 40.0)

The level of knowledge on complication of hypertension was similar between men and women. In most households, salt, salty seasoning or a salty sauce were always or often added in cooking or preparing food.

But practice of adding salt or a salty sauce to food or eating processed food high in salt were relatively rare among these households. Most of them had positive perception to salt intake. Most of them reported that they limited consumption of processed food and avoid eating food prepared outside of home. However, less than half of them reported to adopt other practices of controlling salt intake (buying low salt/sodium alternatives, looking at the salt or sodium content on food labels or using spices other than salt when cooking).

In nearly 30% of the respondents, blood pressure was controlled below 140 mmHg of systolic blood pressure and 90 mmHg of diastolic blood pressure. The women were relatively more likely to have controlled blood pressure than men. The overall level of current smoking and past-year drinking was low among the respondents.

But the men were more likely to be current smokers or past-year drinkers than the women. The majority of the respondents had taken less than five servings of fruits and vegetables per day and they were physically inactive. Over half of the respondents were overweight and had high total blood cholesterol level. Women were more likely to be overweight, had high total blood cholesterol level and increased in waist circumference. About one third of the respondents had diabetes mellitus (Table 2).

Table 3 displays the care seeking behaviour for hypertension among the respondents. The median duration of high blood pressure from first diagnosis was 4 years which was found as similar between men and women. In most cases, the first diagnosis of hypertension was made by a healthcare provider. About 7 in 10 respondents got their blood pressure checked weekly, mostly by basic health staff.

Table 2. Salt consumption pattern, way of blood pressure control and associated cardio-vascular risk factors other than hypertension

Characteristics	Men (n=211)	Women (n=411)	Both sexes (n=622)	
	%	%	%	95%CI
Salt intake pattern				
Always/often add salt, salty seasoning or a salty sauce in cooking or preparing food in the household	68.7	75.9	73.5	(70.0 77.0)
Always/often add salt or a salty sauce such as soya sauce to food right before eating it or while eating it	27.5	33.3	31.4	(27.7 35.0)
Always/often eat processed food high in salt	21.3	22.6	22.2	(18.9 25.5)
Perception to salt intake				
Think that I consume too much salt	17.1	19	18.3	(15.3 21.4)
Think that too much salt or salty sauce in my diet is important to me and could cause a health problem	96.2	98.5	97.7	(96.6 98.9)
Practice for controlling salt intake				
Limit consumption of processed food	78.7	84.4	82.5	(79.5 85.5)
Avoid eating food prepared outside of a home	66.8	73.7	71.4	(67.8 74.9)
Buy low salt/sodium alternatives	36.5	43.3	41.0	(37.1 44.9)
Look at the salt or sodium content on food labels	31.3	42.3	38.6	(34.7 42.4)
Use spices other than salt when cooking	30.3	29.7	29.9	(26.3 33.5)
Control of blood pressure				
Systolic blood pressure (SBP)>140 mmHg alone	35.5	31.4	32.8	(29.1 36.5)
Diastolic blood pressure (DBP)>90 mmHg alone	6.2	4.9	5.3	(3.5 7.1)
Both SBP>140 mmHg and DBP>90 mmHg	37.0	35.0	35.7	(31.9 39.5)
Both SBP<140 mmHg and DBP<90 mmHg	21.3	28.7	26.2	(22.7 29.7)
Associated cardiovascular risk factors				
Current smoking	22.3	3.6	10.0	(7.6 12.3)
Drinking during past year	14.0	2.2	6.2	(4.6 7.8)
Fruit and vegetable intake <5 servings per day	98.1	97.8	97.9	(96.8 99.0)
Low level of active physical activity (<150 minutes per week)	84.8	92.5	89.9	87.5 92.2)
Overweight and obesity (BMI>=25)	55.0	67.4	63.2	(59.4 67.0)
Increased waist circumference (>102 cm in men and >88 cm in women)	13.3	56.9	42.1	(38.2 46.0)
Raised random blood sugar(>200 mg/dl)	29.9	36.5	34.2	(30.5 38)
Raised total cholesterol (>190 mg/dl)	52.6	65.0	60.8	(56.9 64.6)

Table 3. Care-seeking behaviors for hypertension

Care-seeking behavior	Men (n=211) %	Women (n=411) %	Both sexes (n=622) %	(95%CI)
Median duration of high blood pressure from 1st diagnosis in years	3*	4*	4*	(3 5)**
Ways of detecting high blood pressure first time				
Accidental diagnosis by a health care provider	67.3	79.3	75.2	(69.2 81.6)
Diagnosis during general medical checkup	30.8	18.5	22.7	(19.5 26.0)
Self-detection by blood pressure monitoring device	1.9	2.2	2.1	(1.2 3.6)
Frequency of checking blood pressure				
Daily	4.7	4.9	4.8	(3.4 6.8)
Weekly	73.9	69.6	71.1	(67.4 74.5)
Monthly or less frequently	21.3	25.5	24.1	(20.9 27.6)
Usual way of checking blood pressure				
GP/Physician	11.8	18.5	16.2	(13.5 19.4)
Basic health staff	75.8	70.6	72.3	(68.7 75.7)
Self/family members	10.4	9.5	9.8	(7.7 12.4)
Pharmacy	1.9	1.5	1.6	(0.9 3.0)
Medication				
Taking medication regularly	90.5	89.8	90.0	(87.4 92.2)
Taking medication irregularly	9.5	10.2	10.0	(7.8 12.6)
Advice from health workers				
Received	92.9	96.6	95.3	(93.4 96.7)
Not received	7.1	3.4	4.7	(3.3 6.6)
Current taking herbal or traditional remedy for raised blood pressure				
Yes	18.5	14.4	15.8	(13.1 18.8)
No	81.5	85.6	84.2	(81.2 86.9)

*Median value, **Non-parametric 95% confidence interval

Almost all respondents reported that they had advice from health workers to change behaviour (to reduce salt intake, to lose weight, to stop smoking, to start or do more exercise) and to reduce blood pressure. They took medication regularly. Only a few (15.8%) had herbal medicine to control hypertension. The level of comorbidities was lower 10% except for stroke which occurred once in every ten respondents. Urine albumin was detected and random blood sugar was raised above 200 mg/dl in one third of the respondents. ECG abnormal voltage (the suspicious of ischaemic heart disease) was found in 1 in 8 respondents.

Table 4. Reported comorbidities, target organ involvement and 10-year risk for CVD

Characteristics	Men (n=211) %	Women (n=411) %	Both sexes (n=622) %	95%CI
Comorbidity				
History of stroke	16.6	8.5	11.3	(8.8 13.7)
History of myocardial infarction	3.8	6.6	5.6	(3.8 7.4)
History of arrhythmia	4.7	5.6	5.3	(3.5 7.1)
History of eye problems	1.9	2.2	2.1	(1.0 3.2)
History of renal impairment	2.4	1.0	1.4	(0.5 2.4)
Target organ involvement				
Urine albumin detected (trace, + to +++)	43.1	31.1	35.2	(31.4 39.0)
ECG abnormal voltage (Left ventricular hypertrophy and other abnormal voltage)	12.8	12.4	12.5	(9.9 15.1)
ECG abnormal rhythm (Atrial fibrillation, atrial flutter and other arrhythmias)	4.7	1.2	2.4	(1.2 3.6)
10-year CVD risk score				
Low (<10%)	21.8	40.4	34.1	(34.1 34.1)
Moderate (10-<20%)	34.6	23.6	27.3	(27.3 27.3)
High (20-<30%)	13.7	13.9	13.8	(13.8 13.8)
Very high (30-<40%)	13.7	7.1	9.3	(9.3 9.3)
Extremely high (>=40%)	16.1	15.1	15.4	(15.4 15.4)

About 1 in 4 respondents had 10-year risk for cardiovascular diseases equal or more than 30%. In this respect, men had higher risk for cardiovascular diseases than women (Table 4).

DISCUSSION

This study mainly focused on the hypertensive patients in Yangon Region and demonstrated the data on 'care seeking behavior and target organ involvement of hypertension'. There was a female preponderance in the study population. Most respondents were over 40 years, married with an education level of middle school and lower.

The majority of the study population knew ways of controlling blood pressure and some common complications of hypertension such as stroke and heart attacks. However, other complications of hypertension such as renal impairment and heart failure were less known. The respondents' households usually added salt, salty seasoning or salty sauce in cooking or preparing food even

though most of them knew that too much salt or salty sauce in the diet could cause a health problem. Most of the respondents had limited consumption of processed food but rarely checked the salt or sodium content on food labels. The great majority of the respondents daily had lower than 5 servings of fruits and vegetables and they were physically inactive. Over half of the respondents were overweight and high in total blood cholesterol.

About 7 in 10 respondents had uncontrolled blood pressure although they took medication regularly. The study showed that about 1 in 4 respondents had 10-year risk for cardiovascular diseases equal or more than 30% and 6 in 10 respondents had at least one target organ involvement of hypertension (renal impairment or diabetes or abnormal ECG changes).

The study pointed out that the blood pressure was uncontrolled, although the respondents reported regular medication and most of them had target organ involvement. The reasons may be multi-factorial: lack of optimization of hypertension treatment and regular monitoring of blood pressure, addition of other risk factors such as high intake of dietary salt, low intake of fruits and vegetables, low physical activity and overweight.

Therefore, these indicated the need for strong communication programs of behavior change for persons with known hypertension and these programs should stress regular monitoring of blood pressure and reduction of dietary salt consumption, more consumption of fruits and vegetables, adoption of physically active life and control of body weight. It is also necessary to consider how to improve the optimization of anti-hypertensive medications in the community and early detection of target organ involvement.

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