

ORIGINAL ARTICLE

**PATTERNS OF COMPLICATIONS SEEN IN PATIENTS WITH HYPERTENSION
ADMITTED TO TIKUR ANBESSA HOSPITAL:
A RETROSPECTIVE ANALYSIS**

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ABSTRACT

Background: Complications due to undetected and uncontrolled hypertension have been recorded to be devastating. Among these are cerebrovascular, cardiovascular and renal complications. Lack of data on the patterns of these complications, combined with the notion that hypertension is only a problem of developed nations, has resulted in missed opportunities for early detection and treatment.

Method: A retrospective cross-sectional study was performed through medical chart review of 106 hypertension patients who were admitted with complications of hypertension at Tikur Anbessa Specialized Hospital from January 2013 to January 2014 E.C.

Results: A total of 106 medical charts of hypertensive patients were reviewed. Among the patients involved in the study, 51% were male, 45% were in their fifth and sixth decades and two third of them did not have any co morbidity. Sixty seven percent of these patients had cerebrovascular disease (stroke), 11% had stroke and hypertensive heart disease, 8% had stroke, hypertensive heart disease and chronic kidney disease (all three), and 5% had stroke with chronic kidney disease. However, there was no significant association between the considered variables and the outcome.

Conclusion: This study has revealed most of the patients have stroke as a complication, therefore preventive or prophylactic measures should be encouraged to avail it.

Keywords: Hypertension, Stroke, Tikur Anbessa Specialized Hospital

INTRODUCTION

Hypertension has been acknowledged as one of the greatest and established risk factors for cardiovascular diseases.¹ According to the 7th report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC 7), the prevalence estimates worldwide for hypertension may be as much as 1 billion individuals, and approximately 7.1 million deaths per year may be attributable to hypertension (1, 2).

Hypertension is a growing public health problem in many developing countries including Ethiopia (3). However, its prevention and control have not yet received due attention in these countries. Meanwhile, the developed nations such as the USA have successfully reduced the end results of hypertension to a

significant level. This has to do with earlier detection and proper management. The first step in the process is measuring the burden of the disease and its very complications. The complications of hypertension one way or another are related to the damages it causes to blood vessels. Its cardiovascular, renal and cerebrovascular effects are some of the basic complications related to vascular damage (4, 5).

According to the new report from World Health Organization (WHO) published in September 2011, cardiovascular diseases (CVDs) remain the leading cause of death and disability in the world (1). Non-communicable diseases accounted for more than 36 million deaths in 2008 with CVDs responsible for 48% of these deaths, cancers 21%, chronic respiratory diseases 12%, and diabetes mellitus 3%. Over 80% of CVD deaths occur in low- and middle-income countries. Although, a large proportion of CVDs is preventable, they continue to rise mainly

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because preventive measures are inadequate and it has been projected that by year 2030, almost 23.6 million people will die from CVDs (6).

Data from Africa indicate that hypertension induced vascular damages are still relatively uncommon. CVD incidence rates for Sub-Saharan Africa in 1990 were reported to be 60 per 100,000, with the major etiologies cited as cardiomyopathies, hypertension (African nations report prevalence rates ranging anywhere between 1.2% to 33%) and rheumatic heart disease. For example, a report from Nigeria reviewing cases of sudden cardiac death found that the majority were due to hypertensive heart disease (7).

In sub-Saharan Africa, the prevalence of CVDs has reached near epidemic proportions with SH being the main driver of cardiovascular complications. Whereas SH was said to be rare in Africans in the first half of the twentieth century, current evidences have shown it affects between 30 and 60% of Black Africans. It is the commonest cause of heart failure, stroke, and kidney disease from many studies in Africa. This upsurge in the incidence of SH and its complications in sub-Saharan Africa with high burden of infectious diseases and poverty had greatly reduced the life expectancy in this part of the world (8-10).

A study from Nigeria indicated that out of 7,399 patients admitted into the medical wards of the University of Nigeria Teaching Hospital, Enugu, between December 1998 and 2003, 1,360 (18.4%) had hypertension related diseases (11). Another study done in tertiary hospital in north east of Nigeria showed that from a total 3,108 admissions, 735 (23.7%) were due to hypertension-related complications, with mean age of 51.9 ± 17.5 years. Diabetes complications with systemic hypertension as co morbidity were seen in 96 (3.1%) patients, peripartur cardiomyopathy in 51 (1.64%), and stroke in the young not related to systemic hypertension was diagnosed in 25 (0.8%) patients (12).

Though data on end organ damages due to hypertension are missing in Ethiopia, some researches related to the prevalence of hypertension in Addis Ababa was 30%, Butajira 11%, Hawassa 10.1% and Shebedino 9.7% (3). Due to lack of proper research on how prevalent these problems are in our country, which leads to low level of control, has hindered the success in the struggle of combating the prevailing situation in this regard. This study was aimed to fill the gap in this respect at least at a hospital level.

MATERIALS AND METHODS

Study design: A retrospective cross-sectional study was performed through medical chart review of 106 hypertension patients who were admitted with complications of hypertension at Tikur Anbessa Specialized Hospital from January 2013 to January 2014 E.C (*Tir 2005-Tir 2006 E.C*).

Sample size determination: All patients who were admitted during the study period for the mentioned problems were included in the study.

Variables:

Dependent variable: Cerebrovascular and/or cardiovascular and/or renal complications of hypertension (Yes, No).

Independent variables: Sex, Age, Area of residence and Duration of hypertension Patient status (discharged or deceased).

Inclusion criteria: any patient who was admitted in the medical wards and intensive care units for end organ damage secondary to hypertension in the allocated period.

Exclusion criteria: any patient who is hypertensive but has not developed the complications and those who were admitted in other times than the period mentioned.

Operational Definitions

Hypertension: is a term used to describe high blood pressure which refers to SBP 140 and/or DBP 90 based upon the average of two or more properly measured readings at each of two or more visits after an initial screen:

Normal blood pressure: systolic <120 mmHg and diastolic <80 mmHg

Prehypertension: systolic 120-139 mmHg or diastolic 80-89 mmHg

End organ damage: usually refers to damage occurring in major organs fed by the circulatory system (heart, kidneys and brain) which can sustain damage due to uncontrolled hypertension.

Cardiovascular effects of hypertension: refer to the impacts that hypertension has on the heart and related structures such as the vessels supplying it as well as those vessels taking blood away from it.

Left ventricular hypertrophy (LVH): refers to an increase in the mass of the left ventricular myocardium as an adaptive response to overcoming the highly increased after-load pressure secondary to hypertension as determined by ECG or Echocardiography.

Ischemic heart disease: refers to inadequate perfusion of the myocardium, most commonly due to atherosclerosis of the coronary arteries as a result of hypertension as shown by the ECG or Echocardiography as well as evidenced by some clinical features such as angina.

Myocardial infarction: is an Infarction of an area of the heart muscle, usually as a result of occlusion of a coronary artery as evidenced by the ECG and enzymatic changes.

Heart failure: is a clinical syndrome recognized by a typical combination of symptoms and signs. HF is the clinical manifestation of a pathophysiologic state in which the heart is unable to supply sufficient forward blood flow to meet the metabolic demands of the rest of the body or it is able to do so only from an elevated filling pressure.

Stroke: is a clinical event related to impairment of cerebral circulation that lasts longer than 24 hours secondary to hypertension.

Study procedures and data analysis: Data were collected through reviewing of medical charts and the completion of the data was checked by emphasizing on whether the required information of the patients were fully jotted down in the record or not. Finally, the collected data was entered into a computer for analysis and discussion. The analysis was done by SPSS version 21.0.

Data quality assurance: Data were reviewed from a legally documented medical chart and the researcher himself was directly involved in all aspects of the study.

Ethical considerations: Data were stored in a way that no one except the authorized personnel had access to it. Ethical approval was obtained from Institutional Review Board of the College of Health Sciences at Addis Ababa University.

RESULTS

From A total of 106 hypertension patients included in the study about 66% (70) were residents from the capital Addis Ababa while the rest were from other regions. From the total of 106 patients who were admitted to TASH between January 2013 to January 2014 (from *Tir 2005 to Tir2006 E.C*) with one or more of cerebrovascular, cardiac or renal complications were assessed in this study. Out of which 67% (N=71) were admitted with stroke, 11% (N=12) with stroke and HHD, 8% (N=8) with stroke, HHD and renal CKD, 5% (N=5) each with stroke and CKD as well as that of HHD and CKD, 4% (N=4) with HHD alone and 1% (N=1) with isolated CKD (Table1).

About forty-five percent of the patients found with complications of hypertension were within the age of 51-69, while 25% were below 50 years (Figure 1). Fifty five percent of patients were hypertensive for 1-5 years while 14% were hypertensive for 6-10 years and only 1% were hypertensive for 21 -25 years (Table 2).

74% of deceased patients presented with stroke as a complication were within the ages of more than 40 years and had been hypertensive for 1upto 5 years and it consists about 65% the total patients (Figure 2).

Table 1: Types of complications in hypertensive patients who were admitted to TASH, January 2013 to January 2014 (N=106)

Types of complications	Percentage
Cerebrovascular Disease (CVD)	67
Hemorrhagic Stroke	66
Ischemic Stroke	34
Hypertensive heart disease (HHD)	4
Chronic Kidney Disease	1
CVD,HHD and CKD	8
CVD and HHD	11
HHD and CKD	5

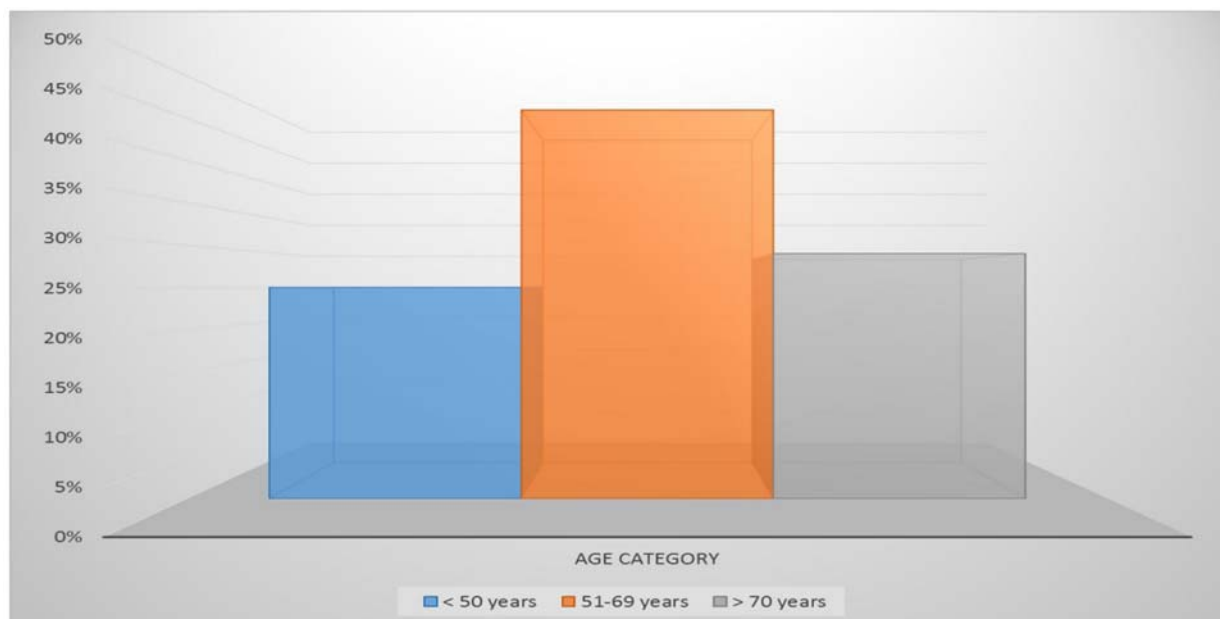


Figure 1: Age category of hypertensive patients who were admitted to TASH, January 2013 to January 2014 (*Tir 2005-Tir 2006 E.C*) with complications

Table 2: Duration of hypertension in patients who were admitted to TASH ,January 2013 to January 2014 (*Tir 2005-Tir 2006 E.C*) with complications (N=106)

Duration (years)	Percentage (%)
< 1	12
1-5	55
6-10	14
11-15	4
16-20	6
21-25	1
26-30	6
>30	3

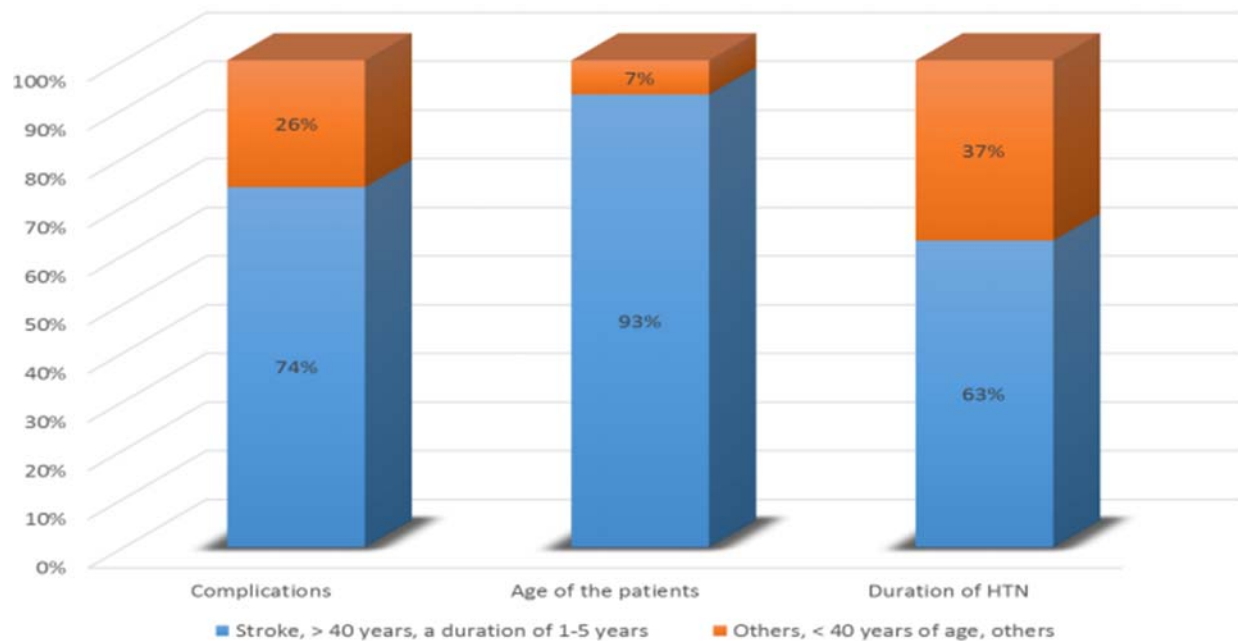


Figure 2: Deceased patients: Comparing type of complication, age group and duration of the disease in hypertensive patients who were admitted to TASH, January 2013 to January 2014

DISCUSSION

The literature on hypertension suggests that cerebrovascular, cardiovascular and renal are the main Complications among others. Either through ruptured vessels resulting in hematoma or narrowed vessels leading to ischemia are the very important mechanisms (7). The present study also revealed that 67% (N=71) were admitted with stroke. This is similar to a study conducted in Nigeria which showed 169 (39.9%) presented with stroke as hypertensive complications. Heart failure occurred in 97 (22%) cases while renal failure and encephalopathy accounted for 40 (9.4%) and 7 (1.7%) hypertensive complications respectively (7).

The prevalence of these complications has not been explicitly studied in our country; however, it is logical to conclude that patients coming to be admitted to a tertiary level hospital are in a serious problem. To take most of them to end up in cerebrovascular complications is therefore high yield. This is comparable to a study done in tertiary hospital in Nigeria (12) which showed 23.7% patients were admitted to hos-

pital due to hypertension-related complications. Most hypertension patients are expected to reside in urban set up. The finding that most of the patients with complications being from Addis Ababa as opposed to patients from the regions is easy to swallow.

Age wise, most of them are found to be between 50 and 70 years and that is the usual scenario in hypertension, except for some primary cases which are seen in earlier age. This is similar to the above study done in Nigeria which revealed that about 23.7 % patients presented with hypertensive complication were with mean age of 51.9 ± 17.5 years (12). Though the prevalence was established, on bivariate and multivariate regression analysis significant association was not found.

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