

Prevalence of Cardiovascular Emergencies in Specialized Hospital, Addis Ababa Ethiopia

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Abstract

Background: Ethiopia demonstrates that a considerable proportion of the disease burden is due to cardiovascular disease (CVD) and other chronic diseases. Hence, this study tried to (a) Estimate prevalence of cardiovascular emergency in Addis Ababa, Ethiopia. (b) Identify the outcome of cardiovascular emergency admitted in specialized hospital.

Method: Institution based cross sectional study was conducted among 205 patients admitted in Emergency room (ER) aged beyond 13 years in specialized hospital in Addis Ababa, Ethiopia. All six month patient charts were selected by convenience method to fill the structured pre-tested check list. Data were entered and analyzed by using SPSS version 16 software.

Result: The prevalence of cardiovascular emergency in the ER of the specialized hospital was 11% of the medical emergency admission was due to cardiac emergency in ER. The mean age of the admitted patients was 41 years out of which 55.4% were females and 44.6% were males. More than half 111(54%) patients were of Addis Ababa from the total patients of cardiovascular emergencies. Majority of the patients were presented with Rheumatic valvular heart diseases (40%), followed by hypertension (26%) and ischemic heart disease (15%). Congestive heart failure (44%) followed by stroke (22%) and Cardiac arrest(11%). 25% of the patients died during their hospital stay.

Conclusion: Rheumatic valvular heart diseases (RHD) were the principal cause of cardiac emergency. Hypertension and ischemic heart diseases was in the second and third position. The government and other sectors have to promote public awareness on the burden of RHD, high blood pressure and ischemic heart diseases. Improvement of emergency care along with lifestyle modification is essential to minimize the burden of cardiac emergencies.

Keywords: CVD; ER; Specialized hospital; Ethiopia

Introduction

Worldwide, CVD is the leading cause of death and a major cause of disability and lost productivity in adults [1,2]. In the United States, heart disease and stroke; the principal components of CVD; rank first and third, respectively, among the leading causes of death [3] such as hypertensive diseases; ischemic heart diseases; pulmonary heart disease and diseases of pulmonary circulation; other forms of heart disease; cerebrovascular diseases or stroke; diseases of arteries, arterioles and capillaries; other diseases of veins, lymphatic vessels and lymph nodes; other and unspecified disorders of the circulatory system [1]. These diseases are common and can occur in infants, children, and adults of both sexes, and they affect people of all races and ethnicities.

In sub-Saharan Africa, including Ethiopia there is increasing evidence of a changing disease profile from infectious diseases and nutritional deficiencies to non-communicable chronic diseases, including chiefly CVD [2].

In Ethiopia, as in many developing countries [4-7], there are no complete or reliable records of births and deaths at the national level. Institution-based data are grossly deficient and biased due to limited

access to or utilization of health services. In the absence of reliable data, national health and development policies and strategies lack a firm ground for the design and implementation of effective program. Instead, they are bound to rely on conventional views about disease control priorities. Such policies and strategies fail to respond to emerging and re-emerging health problems across different sections of the population.

The prevention and control of chronic diseases has not surfaced in the health care agenda in Ethiopia. Thus, the Health Sector Development Program (HSDP) and its implementation to date have paid little attention to the problem of chronic diseases. The HSDP places priority on the prevention of poverty related diseases. However, the notion of poverty related health problems in Ethiopia seems to be devoted to communicable diseases in a narrow sense. Although infectious diseases and malnutrition are closely related to poverty, restricting the use of the expression to communicable diseases only reinforces the 121 misconception that chronic diseases are diseases of affluence.

Health institution-based data compiled by the Federal Ministry of Health of Ethiopia (FMoH) indicate the leading causes of outpatient visits, admissions and deaths [8]. Although these data fail to cover all health facilities or regions of the country, hypertension is emerging in

the list of causes of hospital deaths in recent years [8]. Owing to the lack of diagnostic skills and facilities to detect ischemic heart disease, cerebrovascular disease, and other chronic diseases at peripheral health institutions in the country, and the associated poor recording and reporting system, the emergence of hypertension as a cause of hospital death may represent the “tip of the iceberg”.

Population-based data on cause of death from a few isolated studies, in predominantly rural populations, in Ethiopia also demonstrate that a considerable proportion of the disease burden in these populations is due to CVD and other chronic diseases [9]. Despite widespread skepticism about the public health importance of chronic disease in the country, the available data, although scanty, suggest that about one in four lives or DALYs in rural Ethiopia may be lost due to chronic diseases. This proportion gets even bigger when looking at the causes of DALYs lost among adults or in urban populations separately [9]. Thus this study assessed prevalence of cardiovascular emergencies and its outcome in emergency department of Tikure Anbessa specialized hospital, Addis Ababa, Ethiopia.

Methods

Study design, area and Period

An institution based cross-sectional study was conducted among patient’s card with cardiovascular emergency using a structured check list. A total of 205 patient cards were drawn for record review in Addis Ababa, Ethiopia. Data were collected from April to March, 2013. The center provide service to people that came from all countries of Ethiopia. Most of patients who were admitted to emergency room were from Addis Ababa.

Sampling

Six consecutive months of the year 2012 and 2013, namely, Sep, Oct, Nov, Dec, Jan 2013, Feb 2013, were selected for record reviews.

Using purposive sampling all patient cards with cardiovascular emergencies were drawn starting from Sep 2012-Feb 2013.

Data collection

Pre-tested structured checklist was prepared by reviewing of the necessary data from the patient examination sheet and registration book of the ER of the specialized hospital. The checklist was prepared in English with the same format of the examination sheet. The data were collected and documented the required information by using developed record review check list for the assessment of cardiovascular emergencies prevalence. The checklist was filled with the data of patients who were admitted in the emergency department during the past six months and who met the inclusion criteria. The checklist

includes the demographic status of the patients such as age, sex, residency, occupation and the type of cardiovascular diseases.

Data quality control

Data was collected by two staff nurses in the Emergency Department of the specialized hospital after one day training was given for the data collectors about the objective and procedures of the data collection by the investigator. The check list was pretested in patients with cardiovascular emergencies in St. Paulose hospital ER in Addis Ababa where the problem was assumed to have similar characteristics to the study area. Data completeness and consistency was checked by the principle investigator.

Methods of data analysis

Data entry and analysis was performed by using SPSS version 16 and Excel. First descriptive statistics were carried out to explore the socio-demographic characteristics of the patient, prevalence of the cardiovascular diseases and the outcome of the diseases and the results were summarized as frequencies and percentages.

Ethical considerations

Ethical clearance was obtained from the institutional review board of college of Health sciences, Addis Ababa University. The department of emergency room gave permission to get the card of the patient from the ER and the registrar office of the specialized hospital.

Result

Demographic characteristic of the patient

A total of 205 patient cards were reviewed to investigate the prevalence of cardiovascular emergencies.

The majority of cardiovascular diseases emergencies were dominated by females around 114(55.6%) and males were 91(44.4%). Around 80(39%) patients were in the age group ≥ 50 years followed by the age group that ranges from 30-39 that 41(20%), 36(17%) patients were in the age group 20-29, 27(13.2%) patients were in the age group 40-49 and 21(10%) patients were in the age group 13-19.

More than half 111(54%) patients were from Addis Ababa from the total patients from cardiovascular emergencies.

About 124 (60.5%) patients were married and around 83(40.5%) of patients had above higher education level and 66 (32.2%) of the patient’s had never attended any school. Majority of the patients, 74 (36%) were self-employed; 55 (26.8%) were government employee; 41(20%) were student; 24 (11.7%) were unemployed and 11 (5.4%) were retired (Table 1).

Variables	Frequency	Percent
Sex		
Male	91	44.4
Female	114	55.6
Age		

13-19	21	10.2
20-29	36	17.6
30-39	41	20.0
40-49	27	13.2
>=50	80	39.0
Region		
Addis Ababa	111	54.1
Tigray	2	1
Oromia	54	26
Amhara	16	7.8
SNNP	19	9.3
Afar	1	0.5
Benishangul	1	0.5
Harar	1	0.5
Marital Status		
Married	124	60.5
Single	66	32.2
Divorced	7	3.4
Widowed	8	3.9
Educational status		
Illiterate	66	32.2
Can read & write	15	7.3
Primary School	24	11.7
High School	17	8.3
Higher education	83	40.5
Occupation		
Employed	55	26.8
Self employed	74	36.1
Retired	11	5.4
Student	41	20.0
Unemployed	24	11.7

Table 1: Patients Socio demographic characteristics with cardiovascular emergencies at emergency room of the specialized hospital in Addis Ababa, Ethiopia, 2013. (n=205).

Prevalence of cardiovascular emergencies

Among 1875 patients admitted in the emergency department with a problem of medical emergency throughout the 6 months period (Sep 2012- Feb 2013), 205 patients were found to be admitted due to cardiovascular emergency.

The prevalence of cardiovascular emergency was therefore 11% of the medical emergency of admitted patients in specialized hospital.

Types of cardiovascular emergencies

The most common cause for admission in the emergency room was Rheumatic valvular heart diseases with a frequency of 82(40%), followed by 53(26%) patients with hypertension of stage I and stage II, thirdly 31(15%) patients with Ischemic heart diseases, 25(12%) patients with decompensated cardiomyopathy, 12(6%) patients with a different area DVT and the rest 2 patients were had a problem of Cardiac arrhythmia and most of the patient had two and more than two diseases at a time.

Outcomes of the cardiovascular emergencies

Out of 205 patients 142 which represent 69% were on follow up in different sections like in medical ICU, medical ward and in cardiac clinic, 50 patients which represents 25% died secondary to cardiogenic shock, stroke, acute myocardial infarction, cardiorespiratory arrest and multi organ failure, 10(5%) patients refused to the specialized hospital treatment and went to private hospital, lastly 3(1.5%) patients were deteriorate in their condition due to different reason and went to private clinic (Figure 1).

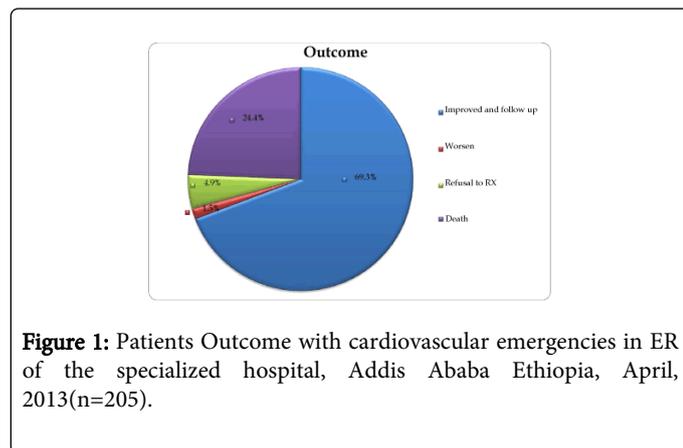


Figure 1: Patients Outcome with cardiovascular emergencies in ER of the specialized hospital, Addis Ababa Ethiopia, April, 2013(n=205).

Discussion

The perspectives of the findings have been discussed with reference to the research problems, objectives, assumption of the study and the finding of other studies.

This study was designed to assess the prevalence and outcome of cardiovascular emergency in specialized hospital ER, Addis Ababa, Ethiopia.

The clinical and demographic presentation of cardiac cases in emergency department may vary from country to country. The age of the study population was from 13 - >=50 years, which is relatively lower than that observed in different studies done in developing and developed world. In a study conducted in Prevalence and Pattern of Cardiac Emergencies in a Tertiary Care Hospital of Bangladesh, the mean age of the study population was 55.5(+9.56) whereas in the current study the mean age was 41(+3.52). In the current study 80(39%) were in the age group >=50 years whereas in the study on the prevalence and pattern of cardiovascular emergencies in Bangladesh city, 31% of the subjects were in the age 50-59 years which is almost similar with the finding of the present study [10].

The current study found that almost 114(55.6%) of the patients were female and 91(44.4%) were male, which is dissimilar with most of

the studies in developing as well as developed countries. This may also attributed to the fact that female patients have low awareness about the prevention, treatment and control of the diseases due to various socio-economic factors [1,10].

In this study, the prevalence of cardiovascular emergency in the specialized hospital ER was 11% from the total medical emergency admission with in Sep 2012-Feb 2013. In a study in Utah, USA, the statewide age adjusted rate for emergency department encounters for coronary heart diseases was 23.2 per 1000 during the year 2007-2009 [3]. In other study the prevalence of cardiac emergency in Bangladesh tertiary Hospital was about 4.5% of the total emergency admission. As this specialized hospital is a general hospital, the prevalence may not necessarily represent the actual prevalence of cardiac emergencies in general population.

These findings are similar in large proportion with other studies done in developing countries like Cameroon, Kenyatta national hospital, Nairobi, Kenya a prospective study. Also a prospective study was conducted in Ghana shows almost similar prevalence data with the previous study conducted in developing countries [4].

In the current study the death rate in TASH emergency room due to cardiovascular emergency was 25%. The overall death rate from CHD in USA in 2009 was about 17% [1]. In another study conducted in Bangladesh the death date due to cardiovascular emergency was 13.5% which is low when compared with the current study [10]. In other study, in low-income and middle-income countries, the proportion of all deaths due to CVD in 2001 was 28%, compared with 23% in 1990; the corresponding proportions in developed countries were 39% and 48% [1,2].

The study had some limitation; patient exact diagnosis might be affected by the knowledge and skill of the examiner because of record review. This study was cross-sectional and could not establish the process and the sign and symptom of the occurrence diseases. I recommend that more studies should be conducted to answer these questions.

Conclusion

This study demonstrated that prevalence of cardiovascular emergency is high in general, as clearly depicted six months data preceding the survey. The leading cause of cardiovascular emergency was Rheumatic valvular heart diseases followed by hypertension and ischemic heart diseases.

Most patients were died during their hospital stay secondary to stroke acute myocardial infarction, cardiogenic shock and cardiac arrest.

The government and other sectors have to promote public awareness on the burden of rheumatic vavular heart diseases, high blood pressure and ischemic heart diseases. Improvement of emergency care along with lifestyle modification is essential to minimize the burden of cardiac emergencies.

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