

Cardiovascular disease among patients admitted to medicine intensive care unit (MICU) in tertiary care hospital

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Abstract

Introduction: Cardiovascular diseases (CVD's) are rampantly increasing in the Indian population with an increasing trend in the younger patients. Overall cardiovascular diseases showed that almost one-fourth of all deaths in India in 2008. CVD's were considered as the fastest growing chronic illness between 2005 and 2015, growing at an average of 9.2 % per year.

Objectives: (i) To know cardiovascular diseases in patients admitted to MICU; (ii) Categorization of various CVD and associated conditions; (iii) To know the socio demographic profile of the patients.

Materials and Methods: The study was retrospective of 3 months duration among patients of age group among 30-50 years admitted in KR Hospital Mysuru. All the patients admitted in the hospital for a minimum duration of 24 hours were included. Data were collected based on standard proforma from the available case record sheets. The analysis of data was based on descriptive statistical analysis.

Results: The study found that majority of cases recorded in MICU was cardiovascular related disorders. In that Myocardial infarction (MI) was major cardiovascular disease (CVD)

Keywords: Medicine intensive care unit (MICU), Myocardial infarction (MI), Cardiovascular diseases(CVD).

Introduction

The Medicine Intensive Care Unit (MICU) is a part of hospital setup providing emergency health care for adult and geriatric critically ill medical patients having conditions related to lung, kidney, liver, cardiovascular diseases, cancer septicemia. Cardiovascular disease(CVD) includes coronary artery diseases (CAD) such as angina and myocardial infarction (MI)¹ other CVD are stroke, hypertension, rheumatic heart disease, cardiomyopathy, arrhythmia, congenital, valvular heart disease, carditis, aortic aneurysms, peripheral artery disease and venous thrombosis.^{[1][2]} Cardiovascular disease is one of the leading cause of death worldwide.¹ Together they resulted in 1.73 crore deaths (31.5%) in 2013 up from 1.23 crores (25.8%) in 1990.² Since from 1970s Cardiovascular mortality rate are increasing in developing countries, while rates have declined in most of the developed countries.^{3,4} World Health Organization (WHO) reported the age standardized CVD mortality rate among males and females in India is 363-443 and 181-281, (per 1,00,000 population) respectively. According to WHO, non-communicable diseases estimate 53% of total mortality rates in Indian population and 24% accounts for CVD.⁵ This study helps to know the burden of diseases being treated in MICU. It helps in understanding the epidemiology of cardiovascular diseases with mortality and morbidity in the Mysuru region and also the infrastructure of MICU.

Objectives

- i. To know the number of CVD patients admitted to MICU.
- ii. Categorization of various CVD and associated conditions.
- iii. To know the socio demographic profile of the CVD patients.

Materials and Methods

It is a retrospective study; total 115 patients admitted in MICU were included in this study.

Inclusion criteria:

1. All the patients admitted in MICU at least for 15 days mainly involving CVD.
2. Age group between 30-50 years.
3. Other systemic diseases involving CVD.
4. Chronic smokers (Males)

Exclusion criteria:

1. Age criteria not more than 50 years.

The study was retrospective collection of case report data for 3 months in age group 30-50 years. The study only included cardiovascular conditions for the detailed analysis. If the patient is having multiple diagnosis and cause will be included in the study. The data collection will be as per the standard proforma. The retrospective study involves collection of data based on the available records related to MICU in the medical record section. Descriptive statistics will be

used for the analysis of the case report data according to international classification of diseases 9.

Results

A total of 115 patients were included in the study as per the available records. 71 (61.73%) patients had cardiovascular related conditions, followed by 32 (27.82%) had respiratory, 10 (8.69%) CNS and 2 (1.73%) renal related problems (Table 1). Majority of the patients had combined systemic related problems (Fig. 1). CVD were more common in men 41(58%) compared to women 30(42%) (Figure 2) and age distribution among study patients (Table 2).

Out of 71 CVD cases the recovery rate was 55(77%) and mortality was 16 (23%). Myocardial infarction 50(70%) was major CVD followed by Congestive Cardiac Failure (CCF) 10(14%), Cardiovascular Accidents (CVA) 6(8%) and Arrhythmias 5(7%) (Graph 3)

Socioeconomic status was assessed according to BG Prasad Classification, where out of total 115 patients, 15 (13.04%) were upper middle class, 70 (60.87%) were middle class and 30 (26.09%) were lower middle class (Table 4).

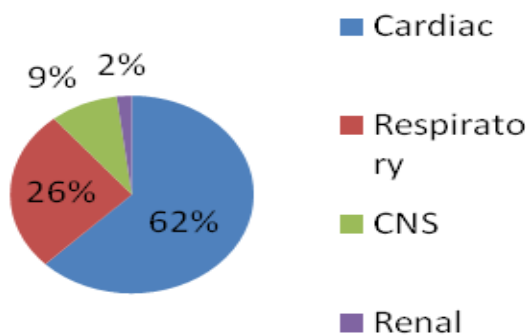


Fig. 1: System wise distribution of patients admitted in MICU (n=115)

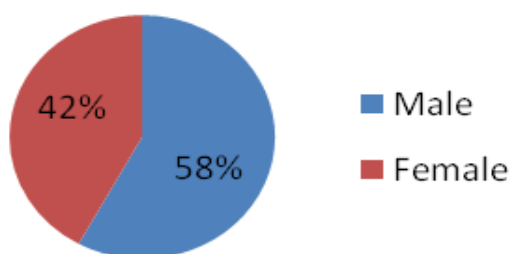


Fig. 2: Gender distribution of CVD (n=71)

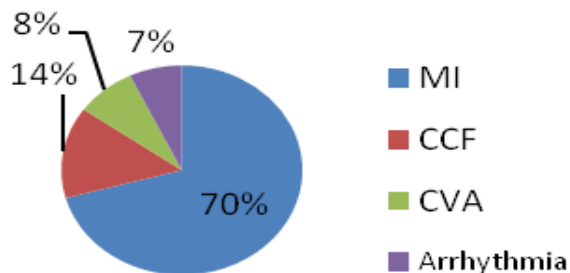


Fig. 3: Forms of CVD distribution (n=71)

Discussion

A discouraging fact is that the incidences of CVD have increased significantly in the age group between 25 – 69 years to 24.8%.² It is important to track down and closely monitor the prevalence of CVD and with better intervention protocols aimed at proper education, prevention, control and treatment of the disease. In India, the exponential rise in prevalence of heart disease in younger population needs to be considered.^{6,7}

A study conducted by Thegalem Hailemariam on Prevalence of Cardiovascular Emergencies in Specialized Hospital, Addis Ababa Ethiopia suggested that the prevalence of cardiovascular emergency in the emergency room was 11% of medical emergency and majority (40%) presented with Rheumatic valvular heart diseases followed by Hypertension (26%) and Ischemic heart diseases (15%) and they were in emergency because majority (44%) had CCF followed by Stroke (22%) and Cardiac arrest (11%).⁹ This study is having a difference in its statistical data suggesting that distribution depends on demography.

Cocaine drug abuse is one of the main reasons for the non-traumatic chest pain and can result in MI in the younger age group⁸. Better prognosis among young patients is achieved by appropriate investigation and treatment offered. Life style changes play important role in all non-communicable diseases. Complete cessation of smoking should be strongly advised.

Table 1: System wise disease distribution in MICU

System involved	Number of patient (%)
Cardiovascular	71 (61.73%)
Respiratory	32 (27.82%)
CNS	10(8.69%)
Renal system	02 (1.73%)
Total	115(100%)

Table 2: Age group wise distribution in all MICU patients

Age in years	Male	Female	Total (%)
30-35	10	06	16 (%)
35-40	12	09	21 (%)
40-45	20	14	34 (%)
45-50	24	20	44 (%)
Total	66	49	115(100%)

Table 3: Cardiovascular diseases distribution among MICU patients

Cardiovascular diseases	Number of patient (%)
Myocardial Infarction (MI)	50 (70.422%)
Congestive Cardiac Failure(CCF)	10 (14.084%)
Cardiovascular Accidents (CVA)	06 (08.450%)
Cardiac Arrhythmias	05 (07.042%)
Total	71 (100%)

Table 4: Demographic Profile

Socioeconomic status	Number of patient (%)
Upper middle class	15 (13.04%)
Middle class	70 (60.87%)
Lower middle class	30 (26.09%)
Total	115 (100%)

Conclulsion

Majority of the patients receiving treatment at MICU was suffering from cardiovascular conditions. MI was the major cardiovascular condition among the study population. Cardiovascular diseases were more prevelant among young adults. It is strongly emphasise the importance of secondary preventive measures in all young patients admitted in medicine intensive care unit with myocardial infraction as the long term mortality can reach one third if not treated appropriately.

To conclude, CVD are slowly reaching out to all sections of the society. Large scale and widespread incidence shows downgrading of the cardiovascular health status of Indians and emergence of CVD as a chronic manifestation across the population. This affects the country’s productivity owing to economic burden in an otherwise beneficial phase of demographic transition. Need of the hour is to track down and closely monitor the prevalence of disease and tackle it with aggressive, effective and efficient intervention policies that aim at prevention, control and treatment of CVD in all sections of the population. More efforts are needed to encounter the epidemic at the level of risk factor prevalence. Also, more targeted and comprehensive policies need to be extended to the masses for healthcare financing.

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