

Incidence of Ventricular Fibrillation in Patients presenting with Myocardial Infarction

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Abstract

A longitudinal observational study done on 100 patients presenting to the emergency medicine department of a tertiary hospital noted the incidence of 10% Ventricular Fibrillation (VF) in patients with Acute Myocardial Infarction (AMI). In emergency medicine, time is of the essence, particularly when faced with life-threatening conditions such as ventricular fibrillation (VF). The incidence of VF is varying in different studies. Data from the FAST-MI programme, a prospective cohort study states the incidence to be 1.8% in 2015. A higher incidence in developing countries may be due to protracted pre-hospital time.

Keywords: Ventricular fibrillation, Resuscitation, Myocardial infarction

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Findings

A longitudinal observational study is done on 100 patients presenting to the emergency medicine department of a tertiary hospital noted that 5% of the patients presented with ventricular fibrillation (VF) in an unresponsive state and 5% of the patients experienced ventricular fibrillation in the emergency department upon presenting with Acute Myocardial Infarction (AMI). VF is a life-threatening arrhythmia that can lead to sudden cardiac arrest. If VF is not treated immediately, it can cause death within minutes. Treatment for VF includes cardiopulmonary resuscitation (CPR) and defibrillation. Our study only included patients with chest pain or unresponsiveness whose final diagnosis was myocardial infarction. Patients with non-cardiac chest pain and dead patients with a history of chest pain *en route* to the hospital were excluded. The rising incidence of MI in younger patients in India is a serious public health concern. The Acute Myocardial Infarction in very Young Adults study (AMIYA) has noted the mean age of patients in young adults as 26.3 years. The Mean age of the patients in our study was 58.6 years. The incidence of 10% is high as compared to a recent study with the incidence of 2% in women and 2.7% in men.² This may be due to a difference in study design,

low sample size and a higher incidence of AMI noted in young adult males in India. The higher prevalence of AMI in India, as compared to Western countries, can be attributed to a combination of demographic, socioeconomic, lifestyle, and genetic factors. Meanwhile, the higher incidence of VF can be attributed to a protracted pre-hospital time. This is a combination of various factors like low public awareness of AMI, Inefficient pre-hospital ambulance services, a tendency to seek second opinions, road infrastructure, and scarcity of Cath lab equipped hospitals. In emergency medicine, time is of the essence, particularly when faced with life-threatening conditions such as VF. Among the various interventions available, defibrillation plays a pivotal role. Defibrillation knowledge is a core component of ACLS training, emphasizing the importance of early recognition, appropriate energy selection, and correct application of defibrillator pads. Doctors trained in ACLS are equipped to confidently handle VF cases, optimize defibrillation techniques, and improve patient outcomes. This training enhances their ability to lead resuscitation efforts, coordinate the team, and make critical decisions during high-stress situations. Defibrillation knowledge is an indispensable skill for doctors in emergency medicine when treating VF. Ongoing education and training in defibrillation techniques should be emphasized to

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ensure that doctors in emergency medicine possess the necessary skills to effectively manage VF and save lives in critical situations. The FAST-MI programme a series of 5 prospective cohort studies between 1995-2015 noted a decrease in the incidence of VF from 3.9% in 1995 to 1.8% in 2015.³ There is a need for a prospective cohort study for the Indian population.

Declarations

Competing interests

The authors declare that they have no competing interests.

Ethics approval

The Study was approved by the Institutional Ethics Committee of Bharati Vidyapeeth Medical College and Research Institute, Pune.

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