Review

Reevaluating the Frequency and Prevalence of Left Ventricular Thrombus on Pre Discharge Contrast Trans Thoracic Echocardiography of Patients in Current Area with Acute Anterior Myocardial Infarction

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Introduction

Cardiovascular diseases are major causes of morbidity and mortality causing more than 25% of deaths in the Indian subcontinent [1,2]. Atherosclerotic disease is expected to become the leading cause of global morbidity and mortality by 2020 [1]. According to an estimate, nearly one hundred thousand individuals suffered an acute myocardial infarction in Pakistan in the calendar year 2002 [3].

Myocardial infarction is associated with number of complications; left ventricular thrombus (LVT) formation is a frequent complication in patients with acute anterior myocardial infarction (MI). Left ventricular thrombus is associated with increased risk of embolism. Higher mortality rates have been reported in patients with LVT after acute MI, especially when these develop within the first 48 hours after infarction [4,5]. Although great majority of patients with LVT have large anterior infarcts with depressed global left ventricular systolic function, this is not the rule. Thrombi can also be found in some small apical infarcts with good global left ventricular systolic function and rarely in some inferior infarcts [6].

Risk factors for developing left ventricular thrombus are infarct location (i.e., anterior myocardial infarction), infarct size and extent, and impairment in global or regional left ventricular function (i.e., ejection fraction < 40%). Most left ventricular thrombi are seen by 2 weeks after an acute myocardial infarction, often attached to the apex or in a discrete aneurysm or dyskinetic ventricular wall [7]. Ventricular thrombus formation is rare in patients with normal ventricular function; however, they may occur in patients with coagulation disorders.

Streptokinase reduces the incidence of left ventricular thrombosis after acute myocardial infarction [8]. Two-dimensional trans thoracic echocardiography (TTE) and trans oesophageal echocardiography (TEE) are the most commonly used techniques for the clinical identification and follow up of left ventricular thombi. Now a day 2D Trans thoracic contrast Echocardiography has revolutionized the identification of LV thrombus more precisely.

In the modern era with improved treatment protocols and public awareness ,the incidence of left ventricular thrombus is decreasing gradually .

Historically, the incidence of LV thrombi complicating AMI had been reported to be 20–40%, and may reach 60% among patients with large anterior wall AMI [9] while in other studies the incidence ranging from 5% to 23% after an acute myocardial infarction [9-11]. In 1999 studies were conducted showing incidence of left ventricular thrombus after acute anterior myocardial infarction was 60% which were reduce to 40 % in 2000 and in 2004 it was 5% to 23%,so there was gradual reduction of left ventricular thrombus formation after acute anterior myocardial infarction.

This study will be ultimately be very fruitful in overall improvement of treatment and management protocols of myocardial infarction in population where facility for primary pci is not available and possible first medical contact to device time >120 minutes.

The rationale of my study is to measure the current frequency and reevaluating the prevalence of LV thrombus in current area by using contrast trans thoracic echo after acute anterior myocardial infarction and to provide correct baseline data for LV thrombus

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formation after acute anterior myocardial infarction in 2017 more precisely. Through publication of this literature more and more cardiologist come to know that there is gradual reduction of LV thrombus formation after acute anterior myocardial infarction in current era. For accurate results large sample size will be included in my study.

Objective

The objective of this study is to measure the:

Frequency and prevalence of left ventricular thrombus on predischarge contrast transthoracic Echocardiography of patients in current area with Acute Anterior Myocardial Infarction.

Operational Definitions

Left Ventricular Thrombus

A blood clot located in left ventricle of heart which is diagnosed on echocardiography.

Acute Anterior Wall Myocardial Infarction

Patients presenting with Chest pain of less than seven days, ST-Segment elevation of ≥2mv in anterior chest leads and raised troponin levels (level of tropnin T >0.01 is significant for acute myocardial infarction).

Materials and Methods

Place of Study

Department of Cardiology, Chaudhry Pervaiz Elahi Institute of Cardiology, Multan.

Study Design

Descriptive Cross sectional study

Duration of Study

6 Months.

Sample Size

My sample size is 219 patients calculated by taking mean of two studies, one showing 5% [9] incidence of LV thrombus and other showing 23% [11] of incidence of LV thrombus after acute anterior myocardial infarction(5%+23%/ 2=14%). By putting values in the formula ,sample size is calculated as $n=z^2pq/d^2$ where z=1.96, p=14%, q=100-p, d=5%, margin of error=5%.

Sampling Technique

Non probability consecutive sampling.

Inclusion Criteria

All patients of either gender and 20 to 70 years of age presenting with acute ST segment elevation anterior myocardial infarction will be included in the study.

Exclusion Criteria

1. Prior myocardial infarction diagnosed on history, clinical examination and investigations (electrocardiography and echocardiography).

2. Cardiac problems like pre-existing heart failure, valvular heart diseases, pericardial diseases and cardiac arrhythmias diagnosed on history, clinical examination and investigations (electrocardiography and echocardiography).Other effect modifier are those patients having history of angina already taking asprin and clopidogrel

Data Collection

After approval and taking informed consent from the patients and thorough counseling, 219 patients fulfilling the inclusion criteria admitted in the emergency department of Chaudary Pervaiz Elahi institute of cardiology will be included in the study. The demographic information like name, age and gender will be noted. All patients presenting with Acute Anterior Myocardial Infarction will undergo echocardiography after two days of post Anterior Myocardial Infarction and the findings of echocardiography will be noted by the researcher.

All information will be noted on specially designed Performa.

Statistical Analysis

The collected information will be entered and analyzed through SPSS (Version 16.0). Quantitative variable of my study will be age and it will be represented as mean and standard deviation. Qualitative variables of my study will be gender and LV thrombus and they will be represented in frequencies and percentages. Other effect modifier are those patients having history of angina already taking asprin and clopidogrel will be included in the study.

Stratification will be undertaken on variables like age , gender, asprin and clopidogrel to control the confounding effects of extraneous variables on the study and will be evaluated by chi-square test at level of significance (0.05).

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Performa

Serial NO._____   Hospital Reg No_____

'Reevaluating the **Frequency and prevalence of left ventricular thrombus on pre discharge contrast trans thoracic Echocardiography of patients in current area with Acute Anterior Myocardial Infarction'**

Name	s/o,d/o,w/o	Age
	Gender	

LV Thrombus on Echocardiography after two days of AMI	YES	NO

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