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Risk Factors Associated With Acute Myocardial Infarction: A Review

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Abstract

Over the last four decades, our understanding of the pathogenesis of myocardial infarction has evolved and allowed new treatment strategies that have greatly improved survival. Acute myocardial infarction remains a leading cause of morbidity and mortality worldwide. It occurs when myocardial ischemia, a diminished blood supply to the heart, exceeds a critical threshold and overwhelms myocardial cellular repair mechanisms designed to maintain normal operating function and homeostasis. There has been a radical shift in therapy from passive healing of the myocardial infarction through weeks of bed rest to early discharge usually within 2 to 3 days as a result of immediate reperfusion strategies and other guideline-directed medical therapies. According to the INTERHEART study report, nine factors are responsible for 90% of myocardial infarctions. Modifiable risk factors include Diabetes mellitus, smoking, hypertension, hyperlipidaemia, sedentary life style, obesity, stress and depression. The combination of several risk factors further enhances the risk. This review highlights risk factors that are responsible for the onset of infraction. Therefore management of these risk factors plays a vital role in order to prevent the development of acute myocardial infarction. Patients who develop cardiogenic shock still face a high 30-day mortality of at least 40%. Perhaps even more important is how do we identify and prevent patients from developing myocardial infarction in the first place. It is utmost important to understand and consider the risk factors during the management and treatment of acute myocardial infarction.

Keywords: Acute myocardial infarction, risk factors, Management of AMI

Introduction

Our understanding of the causes, diagnosis, and treatment of acute myocardial infarction (AMI) has evolved significantly over the decades. In the early 20th century, AMI was generally considered a fatal event diagnosed only at autopsy. Until the 1970s, with appropriate understanding of its usual clinical Presentation, risk factors and diagnosis, it was conservatively managed with prolonged bed rest and afterwards with a sedentary lifestyle. Since then, there has been an sudden increase of information which has changed our understanding of its pathogenesis and markedly altered our treatment options, leading to vastly improved outcomes.

Acute myocardial infarction is one of the most common diseases among the developing countries [1]. These diseases have caused mortality in developed countries more than other diseases and impose numerous social and economic costs. This heart disease has emerged as a major health problem in developing countries including India. Precious life is snatched away when person is in most productive stage of life, when the social and family responsibilities are the greatest. These diseases are now seen in countries with low or average income which also have the majority of population. These diseases will probably turn into the most common cause of death in world till 2020 [2]. AMI is defined by the ischeamia and succeeding necrosis of the heart muscles that follows from a dramatic reduction of the blood flow in the heart. This blood flow reduction is caused by a thrombosis formation that can be initiated from erosion or from a disruption of an atherosclerotic plaque in the coronary artery [3]. Atherosclerosis relates to the accumulation of lipids and lipoproteins in the endothelium and is characterized by a chronic inflammation [4] that is also involved in the plague rupture and thrombosis [5].

It is commonly known as a heart attack, which occurs when there is a sudden block in blood flow in one or more of the coronary arteries and this cut off blood supply to a part of the heart muscle, causing necrosis (massive cell death, a permanent damage). If the block is severe, the heart can stop beating (cardiac arrest). This is most commonly due to occlusion or blockage of a coronary artery following the rupture of a vulnerable atherosclerotic plaque which is an unstable collection of lipids (cholesterol and fatty acids) and white blood cells (especially macrophages) in the wall of an artery. Myocardial infarction usually begins in the endocardium and spread towards the epicardium [6-8]. There are many symptoms of acute myocardial infarction but the most common is chest pain, which may travel into the shoulder, arm, back, neck or jaw. This type of pain always starts from the center or left side of the chest and remains for few minutes. The onset of symptoms in acute myocardial infarction is usually gradual, over several minutes and rarely instantaneous [9]. It seems that the mortality of these diseases will increase in developing countries due to lack of familiarity with the risk factors associated and failure to comply preventive principles. Identification of risk factors is an essential prerequisite to contain this menacing problem. Present study was conceived which is an attempt to study the risk factors associated with the development of acute myocardial infarction (A.M.I.).

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