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## Acute Myocardial Infarction in South Libya

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### Abstract:-

**Objective:** To determine clinical characteristics of patients with acute myocardial infarction.

**Setting:** Intensive Care Unit, 2<sup>nd</sup> March Teaching Hospital, Sebha, South Libya.

**Methods:** A prospective hospital-based study of patients with acute myocardial infarction in the period from April 2003 to March 2004.

**Results:** A total of 31 patients were admitted with acute myocardial infarction. The majority of patients (74%) were males. Females (26%) were postmenopausal. The mean age was 56.4 years. All patients showed evolutionary changes in ECG tracings. Creatine phosphokinase was raised in 25 patients (80%) and lactic dehydrogenase in 23 patients (74.6%). The cardinal symptom was chest pain (77.5%). Complications included heart failure (33%), shock (29%), arrhythmia (19%) and angina (16%). Ten (32%) patients died in hospital.

**Conclusion:** The study has revealed a high mortality rate due to AMI and calls for improvement of cardiac care by physicians and control of risk factors by public health experts.

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### Introduction:

Acute Myocardial Infarction (AMI), perhaps, more than any other condition, may be considered the quintessential "twentieth century disease".

Despite impressive strides in diagnosis and management over the last three decades, AMI continues to be a major public health problem in the industrialized world. In the United States (USA) nearly 1.5 million patients annually suffer from AMI.<sup>1</sup> More than one million patients with suspected AMI are admitted yearly to coronary care units in the USA; in only 30 to 50 percent of patients is the diagnosis confirmed.<sup>2</sup>

Although the death rate from AMI has declined by about 30 percent over the last decade, its development is still a fatal event in approximately one third of patients.<sup>1</sup> About 50 percent of the deaths associated with AMI occur within one hour of the event and are attributable to arrhythmia, most often ventricular fibrillation.<sup>3</sup> Because AMI may strike an individual during the most productive years, it can have profound deleterious psychological and economic ramifications. In the USA, the yearly economic burden of coronary artery disease is in excess of 60 billion.<sup>1</sup> Perhaps as much as half of this cost is related to AMI and its prevention and treatment.

A steady decline in the mortality rate from AMI has been doserved across several

population groups since 1960.<sup>4</sup> This drop in mortality appears to be caused by a fall in the incidence of AMI, replaced in part by an increase in incidence of unstable angina, and a fall in the case fatality once AMI has occurred. Several landmarks in the management of patients have contributed to the decline in mortality from AMI. In the mid-1960's the concept of coronary care units was introduced. The first decade of coronary care was notable for detailed analysis and vigorous management of cardiac arrhythmias.

Subsequently, introduction of the pulmonary artery balloon flotation catheter set the stage for bedside hemodynamic monitoring and more precise management of heart failure and cardiogenic shock associated with AMI. The modern perfusion era of coronary care was ushered in by intra-coronary and then intravenous thrombolysis, increased use of aspirin, and development of primary Percutaneous Transluminal Coronary Angioplasty (PTCA) for AMI. Drug therapy continues to be an integral aspect of the treatment of patients with AMI, noteworthy advances in the use of beta-adrenoceptor blockers, antithrombotic regimens, nitrates and angiotensin converting enzyme (ACE) inhibitors.<sup>5</sup>

In addition, clinicians are now more astute at identifying those patients who are at increased risk of AMI and benefit from more aggressive prophylactic cardiovascular treatment.<sup>6,7</sup>

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Available evidence from epidemiologic and clinical studies indicates that coronary heart disease is largely preventable. Traditional risk factors such as cigarette smoking, hypercholesterolemia, hypertension, sedentary life style, obesity and glucose intolerance explain a major proportion of the disease. Recent evidence also suggests important preventive and adjunctive roles for hormone replacement therapy and low-dose aspirin. A promising role for dietary factors including folate, antioxidants, and other micronutrient in the prevention of AMI is also suggested by recent data.<sup>8</sup>

The aim of this study was to determine clinical characteristics of patients with acute myocardial infarction in 2<sup>nd</sup> March Teaching Hospital, Sebha, South Libya.

**Patients and Methods:**

This prospective study was conducted in the Intensive Care Unit ‘ICU’ of 2<sup>nd</sup> March Teaching Hospital, the main referred hospital in South Libya. All patients with AMI admitted to the ICU in the period from 01.04.2003 to 31.3.2004 were included in the study. Diagnosis of AMI was based on the World Health Organization criteria which require at least two of the three following elements be present: a history of ischemic-type chest discomfort, evolutionary changes on serially obtained ECG tracings, and a rise and fall in serum cardiac markers.<sup>9</sup>

The medical work up included history taking, clinical examination and investigations. The

information collected included demographic data (age, sex, of occupation); symptoms (chest pain, dyspnoea, sweating) along Electrocardiogram (ECG), serum cardiac markers (CPK, LDH) and echocardiography.

**Results:**

During this study period 31 patients were admitted to the ICU with a diagnosis of AMI. The majority of cases, 23 (74%) were males. Female patients, 8(26%) were postmenopausal. All patients were adults with a mean age of 56.4 years.

All patients showed evolutionary changes on serial ECG tracings and disordered contractions on echocardiography.

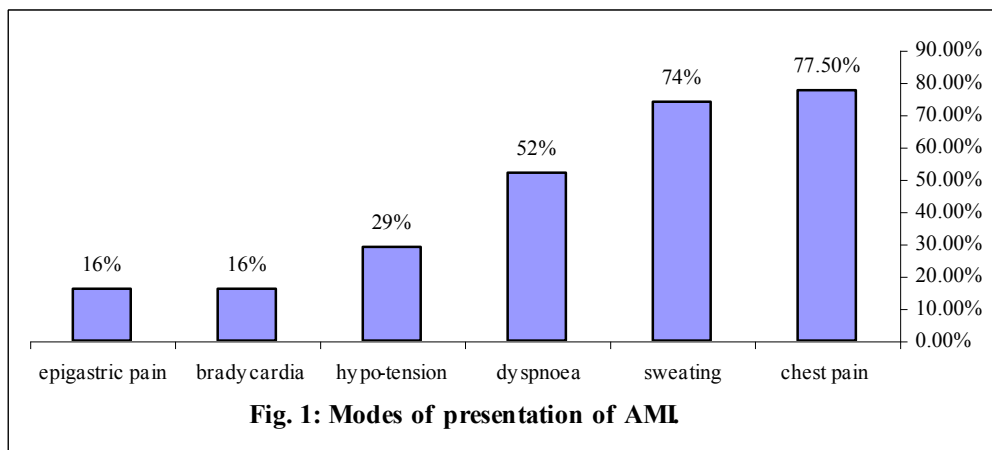
A diagnosis of Q-wave AMI was made in 28 (93%) patients. Thirteen (43%) patients had anterior wall AMI, 8 (26%) inferior wall AMI, whereas 9 (31%) patients had multiple wall AMI.

Analysis of serum markers of cardiac damage showed raised creatine phosphokinase in 25 (80%) patients and elevated lactate dehydrogenase in 23 (74%) patients.

The cardinal symptom was chest pain (77.5), however, the pain was epigastric in 5 (16%) patients. Other modes of presentation were sweating (74%), dyspnoea (52%), hypotension (29%) and bradycardia (16%).

Complications of AMI included heart failure (33%), shock (29%), arrhythmia (19%) and postmyocardial angina (16%).

Ten patients died in the hospital (32%).



**Fig. 1: Modes of presentation of AMI**

**Discussion:**

Cardiovascular disease remains the single most frequent cause of death in the USA and the United Kingdom, and currently more than 1

million AMI occur annually in the USA. In a clinicopathologic study, coronary heart disease was the cause of death in 32% of all adult autopsies, and among these AMI was the cause

of death in 39%.<sup>12,13</sup> These figures underscore the magnitude of the problem and they emphasize that the diagnosis and management of AMI continue to be of the utmost concern to the practicing physician.<sup>14</sup>

To the best of our knowledge, this is the first study of AMI in south Libya. However, the findings are limited in part due to small number of cases and lack of information about several attributable risk factors of AMI.

In the future, data from well planned randomized studies of AMI can provide qualitative and quantitative information about modifiable determinant of myocardial infarction and intervention studies.

In this study the majority of patients were men (74%) and all female patients were postmenopausal. This is consistent with the Framingham Heart study which indicated that coronary artery disease morbidity was twice as high in men as in women. The onset of coronary artery disease is typically about 10 years earlier in men, but the disease incidence in women increases rapidly at menopause. Women have the same modifiable risk factors as men, although diabetes appears to confer greater risk in women than in men, as may low high density cholesterol and elevated plasma triglycerides.<sup>15</sup>

All patients in our series were adults, with a mean age of 56.4 years, a finding that prompts reduction of modifiable risk factors for AMI in middle-aged and elderly patients.<sup>1</sup>

The cardinal symptom of AMI in our patients was chest pain reported by 77.5% consistent to that of a series (81.6%) in an English community.<sup>16</sup> Other modes of presentation were sweating (74%), dyspnoea (52%), hypotension (29%) and bradycardia (16%).

The mortality among the present series (32%) was high. Elsewhere advances in the medical

treatment of AMI have contributed significantly to the decline in mortality (6.3 to 10.6%). This findings calls for revision of management of AMI with emphasis on vigorous treatment of cardiac arrhythmias, precise management of heart failure and shock, use of percutaneous transluminal coronary angioplasty.

Drug therapy should continue to be an integral part of care of patients with AMI, noteworthy advances in the use of aspirin, beta blockers, anticoagulant regimens, nitrates and angiotensin converting enzyme inhibitors.<sup>5</sup>

Furthermore, preventive strategies for ishmeic heart disease, should be implemented in the community. The latter depends on a precise understanding of a etiologic factors. Thus the gaps in our knowledge about coronary artery disease (CAD) risk factors call for population studies to assess the importance of modifiable risk factors for CAD-associated mortality. Major modifiable risk factors to be considered so far include hyper cholesterolemia hypertension, smoking and blood levels of fibrinogen.

Major risk factors, the association of which with CAD mortality is less obvious, that shouldn't be overlooked include obesity, diet, alcohol, physical activity, diabetes mellitus, hypouricaemia, oestrogens and blood viscosity. In conclusion, this prospective study of AMI has revealed a high mortality rate and calls for improvement of cardiac care by physicians and control of risk factors by community health experts.

#### **Acknowledgement:**

Authors are grateful for the help of Dr. Adel M. El Hafer and Dr. Abir A. Al Murabet in collection of data.

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