
Risk Factors and Types of Non Fatal Acute Myocardial Infarction in Zliten Teaching Hospital

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Abstract:

Acute MI is a very significant health problem leading to an important mortality and morbidity. Due to identification and modification of its risk factors, it can help to decrease its effects. We had conducted this prospective observational study in the CCU at Zliten Teaching Hospital aiming to determine the risk factors and anatomical distribution of acute non-fatal MI in Zliten area. Zliten area has a population of 184884 according to the 2006 consensus. Died cases on arrival or within 24 hours from admission were excluded from our study.

Results: We had 30 cases admitted with acute MI (18 males and 12 female) from 1/1/2009 to 31/12/2009. Eight cases were diagnosed as NSTEMI, 22 cases were diagnosed STEMI, out of which 7 cases were found with inferior MI and others were found with anterior or anterolateral MI. The most important risk factor was smoking, and followed by DM and HTN. The striking observation is that the prevalence of hypertriglyceridemia is far more than hypercholesterolemia.

Key words: non-fatal, Zliten, risk factors, smoking.

Introduction:-

Myocardial infarction is the interruption of blood supply to part in the heart, causing some heart cells to die. This is the most common due to the occlusion (blockage) of a coronary artery following the rupture of a vulnerable atherosclerotic plaque. The resulting ischemia (restriction in blood supply) and oxygen shortage, if it is left untreated for a sufficient period of time, so it can cause damage or death (infarction) of heart muscle tissue (myocardium).

Classical symptoms of acute myocardial infarction includes sudden chest pain (typically radiating to the left arm or left side of the neck), shortness of breath, nausea, vomiting, palpitations, sweating, and anxiety. Women may experience fewer typical symptoms than men, most commonly shortness of breath, weakness, a feeling of indigestion, and fatigue.¹

Heart attacks are the leading cause of death for both men and women all over the world.²

Only 50% those who suffer in MI survives the acute event, 10% die in hospital, and another 10% die in the next two years.³

Non-fatal MI was considered in patients who discharged from the hospital alive.⁴

Known important risk factors are previous cardiovascular disease (such as angina, a previous heart attack or stroke), older age

(especially men over 40 and women over 50), tobacco smoking, high blood levels of certain lipids (triglycerides, cholesterol), diabetes, high blood pressure, obesity, family history of ischaemic heart disease (IHD).^{5,6}

On the basis of the ECG, a distinction is made between ST elevation MI (STEMI) or non-ST elevation MI (NSTEMI or non-STEMI). STEMI can be subclassified into anterior, posterior, or inferior.⁷ The diagnosis of myocardial infarction is made by integrating the history of the presenting illness and physical examination with electrocardiogram findings and cardiac markers.⁸ Now the cardiac biomarkers is most widely used as CKmb and Troponin T&I.⁹

The risk of a recurrent myocardial infarction decreases with strict blood pressure management and lifestyle changes, chiefly smoking cessation, regular exercise, a sensible diet for patients having heart disease.

Material and method:

This is a prospective observational study. We have studied the cases of acute MI admitted to CCU Zliten Teaching Hospital during one year starting from 1/1/2009 to 31/12/2009. A total of 48cases were admitted to ICU in this period, 11 cases were died and 7 cases had lost data files, so 30 cases were included in our analysis.

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Many cases died on arrival and also many died within 24 hours from admission, so those were excluded from our study.

We depend on symptoms, serial ECG and cardiac biomarkers for diagnosis.¹⁰

For each case , serial ECG, serum Troponin I, CKMB, LDH,CRP, Total cholesterol, and Triglycerides were determined in the analysis report.

Also BMI, blood pressure ,smoking history and diabetic status were evaluated.

A trans-thoracic echocardiography was done for each case on days 2,3,4.

All cases were either discharged or transferred for angiography and possible intervention.

Results:- A total of 30 cases were recorded in the period of one year. There were 18 males and 12 females. The age ranged between 30 and 90years. Nearly all females were above 50 years of age fig(1).

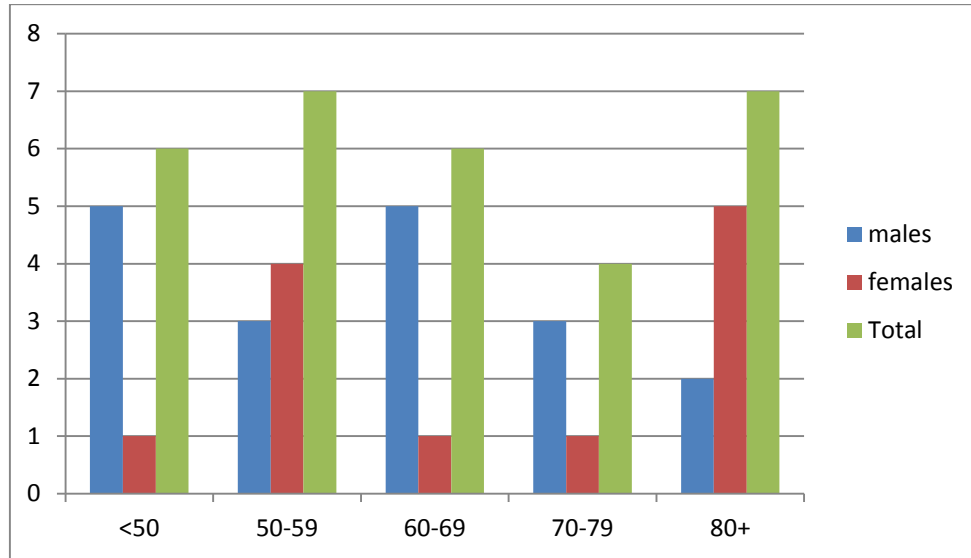


Fig. 1: Distribution of MI cases according to age and sex

All cases showed increase cardiac enzymes, 8 cases were diagnosed as NSTEMI, 22 cases with STEMI, out of which 7 cases with inferior MI and the others with anterior or anterolateral

MI. This is a quit comparable with a previous study by Shenib et al. in Sebha - Libya.¹¹ Most of the inferior MI cases were males (7 out of 8). Fig. (2)

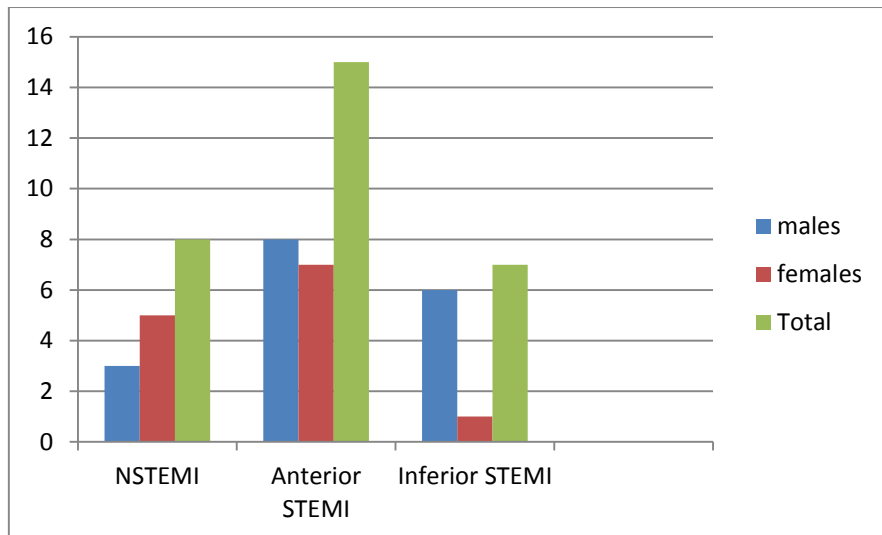


Fig. 2: Types of MI according to sex.

The most risk factor was smoking (56.6%) which was found in 14 males and 3 females in whom history of snuffing was positive in 2 cases and one is passive smoker.¹²

The second most prevalent risk factor was DM and HTN, which was equally found in 33.3%

of cases. This is followed by a high triglyceride level rather than a high cholesterol.

Obesity (BMI $\geq 30\%$) was found in only two cases while over weight (BMI 25-29.9%) in 6 cases. In 4 cases no risk factor from the studied common risk factors was detected. Fig (3)

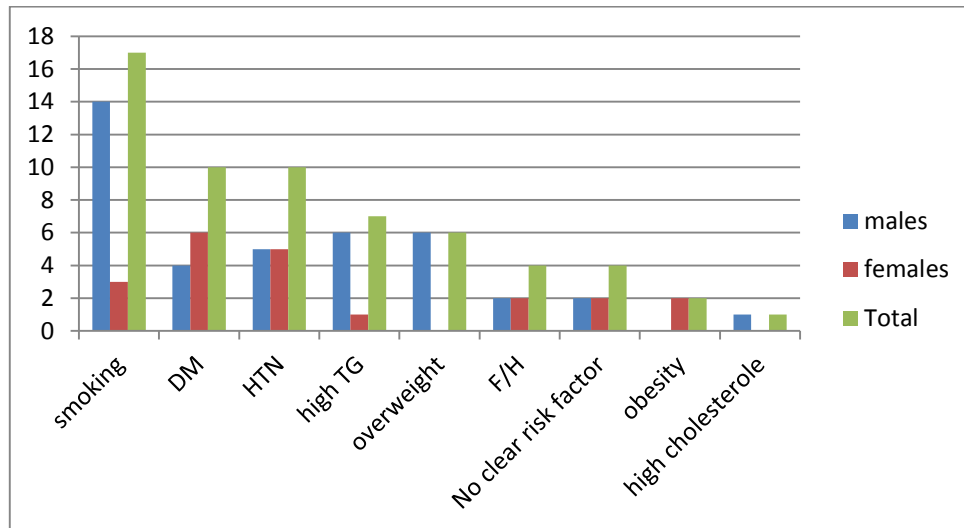


Fig. 3: Distribution of risk factors.

This means a conventional risk factor was present in 86.6% of cases compared with some other studies¹³ like the one done on Iranian population in which 97% had at least on risk factor.

Discussion:

Acute MI is one of the main cause of sudden cardiac death. Mortality rate after acute MI is very high which is 50% and occurs mainly in the first few hours. Further 10% will die in the next 2 years, and about 30% will live beyond 2 years.³

The prevalence of risk factors can vary from one place to another depending on genetic factors and life style of the community.³

In our study, we found that acute MI is a disease of middle and old age with male to female ratio 3:2. Cases below 50 years were mainly males with female cases increasing after 50 years.

The most prevalent type of MI was the ST elevation MI from which anterior MI was more common than inferior MI .No posterior MI was recorded.¹¹

The inferior MI was more common in males (6:1). NSTEMI compromised 26.6% of cases with M:F ratio of 3:5.

Smoking was found to be the main risk factor in our study (56.6% of all cases) but it is in

77.7% of males and 25% of females which makes it necessary to conduct community based programs and campaign to encourage the smokers to quit smoking. In 2 females there was H/O snuffing which could be significant though some studies question this as a risk factor.^{12,14,15}

DM was found in 33.3% of cases, which was the same as HTN prevalence.

High cholesterol level was found in only one patient as compared with high triglyceride level, which was far more prevalent (6cases). This could be a result of high prevalence of DM in these cases.

Now if we compare these results with the prevalence of the main risk factors in the general population(aged between 25 and 65) according to the latest results of the national survey conducted by the Libyan cardiac society,¹⁶ we found that the prevalence of smoking in our cases was 56.6% compared with 23.8% in the general Libyan population and this will be quit logic.

The same applies with DM, for which the prevalence in MI cases is of 33.3% compared with 16.4% in the general population.

We expect, the major risk factors should be more prevalent in MI cases as compared with the general population. This applies for smoking and DM.

But if we look to the prevalence of HTN in our study we find that it is less than the general population (33.3% compared to 40.6%)!. So there must be an explanation for this, and we think that the duration of HTN, its level of control, and interaction with other risk factors is more important than the sole presence of HTN.

Conclusion:

Acute MI follows the same pattern of age ,sex distribution as other areas.

We found that smoking is the main identifiable risk factor in our study, making it mandatory to control this habit in order to decrease the incidence of acute MI.

Diet habits in Zliten area may be responsible for the low prevalence of hypercholesterolemia in our cases.

Further studies especially multicenter control studies may help to point out the relative contribution of each of the risk factors for the occurrence of MI in different areas of Libya.

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