
Pattern of Myocardial Infarction and its Treatment in Libyan Females

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Abstract:

A retrospective clinical study of types of myocardial infarction (MI) in 200 Libyan female patients was undertaken in Tripoli Medical Center (TMC) from January 2001 to October 2004 (4 years), with age groups between 25 years to 97 years. The results indicate that most of the patients belonged to old age group (50-79 years). Extensive and antero-septal types of MI were most common types of MI. The vast majority of the patients were post-menopausal (95%). The condition was treated mainly with analgesics (morphine), anticoagulants and vasodilators. A further study to correlate lipid profile with the menopausal status is suggested.

Introduction:

Myocardial infarction is an ischemic necrosis of a variable amount of myocardial tissue as a result of an abrupt acute decrease in coronary flow or an equivalent abrupt increase in myocardial demand for oxygen that cannot be supplied by an obstructed coronary artery.¹

Myocardial infarction (MI) is not common in women of reproductive age. Limited data is available, which shows that age, smoking, diabetes, hypertension and raised total blood cholesterol are important risk factors for myocardial infarction in young women.² The death rate due to MI is higher for men than for women between the ages of 35 and 55, however after the age of 55, the death rate for men declines but the rate for women continues to rise.^{3,4} The marital stress has shown to affect women's mental health.⁵ Marital stress worsens prognosis in women with coronary heart disease (CHD) and is consistent with lack of perceived social support in women, which is associated with increase risk of both first⁶ and recurrent acute myocardial infarction (AMI)^{7,8} and is also consistent with the reports of an adverse effect on lipid levels and glucose metabolism in women.⁹

There is lack of reports relating marital status in women to the incidence of IHD (ischemic heart disease). This study envisages this factor.

Patients and Methods:

A retrospective clinical study of myocardial infarction was undertaken in 200 female patients of MI. The data was collected from the discharged female patient's files from the statistics department and from some patients

present in cardiology department of Tripoli Medical Center, with different types of MI (inferior, anterior, subendocardial, antero-septal, and anterolateral infarctions). The last three types also include extensive MI, which represents occluded coronary arteries, at least two branches. Acute and Recent MI were the last two types where the anatomical site of infarction was not mentioned. The acute MI represents the patients coming to the hospital within 12 hours after symptoms of myocardial ischemia started. The patients were given thrombolytic therapy,¹⁰ potent analgesics like morphine followed by anticoagulants (parenteral and then warfarin) unless contraindicated. Recent MI denotes the patients hospitalized after 12 hours of beginning the symptoms). The patients' admissions to the hospital were from January 2001 to October 2004.

The statistical analysis was done with Excel, using one way ANOVA.

Results and discussion:

The maximum number of patients were of the age group 60-79 years, with 64% of total number of cases followed by the age group of 50-59 years with 25.5%, which resembles male incidence as described in literature.² This may be due to many factors affecting women in the age group, such as hormonal changes, diseases like hypertension and diabetes mellitus which affect lipid and glucose metabolism, and high blood cholesterol which has a direct atheroma formation effect on blood vessels resulting in MI.¹¹

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The very old (80-99 years) and young (20-49 years) age groups have a low percentage of incidence with 16% and 18% respectively, which may be due to less number of old-age females in general population and less susceptibility of young females to occurrence of MI respectively.

In this series, out of eight types (inferior [inf.], anterior [ant.], subendocardial [sub.], anteroseptal [antsep.], anterolateral [antlat.], extensive [ext.], acute [ac.], recent [rec.]) of

MI, extensive MI was the most common type because of the involvement of large number of coronary arteries giving rise to extensive damage. This type of MI was most common (87.27%) in old age group (50-79 years), the age at which the atheromatus plaques are deposited in coronary arteries producing the block. Anteroseptal MI was also common, relatively in old age group, with no significant difference between these two types of MI ($p > 0.05$). The other types were uncommon.

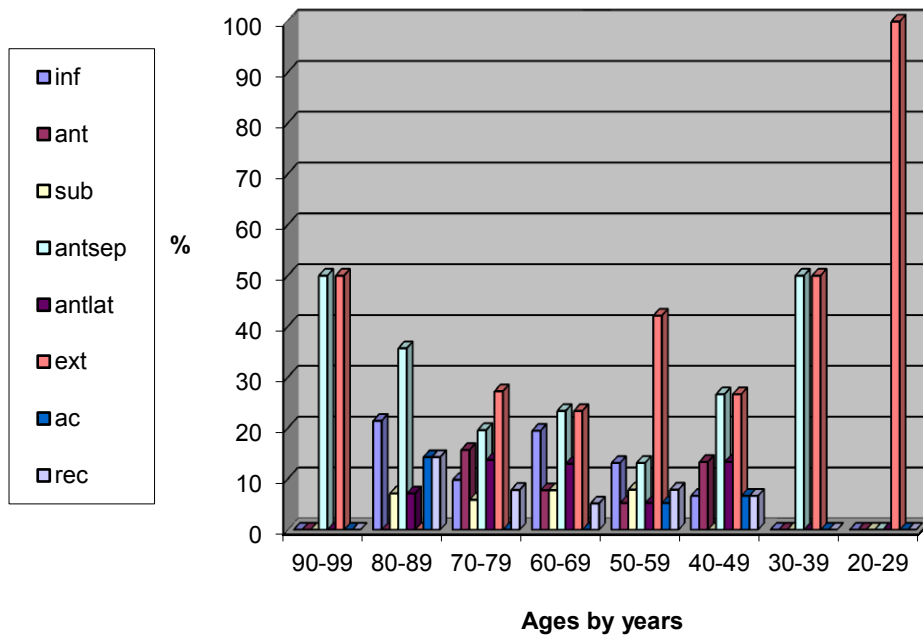


Figure1. Relation of age and MI types

In this series all the patients were married and/or widow (100%) with no case belonging to single or divorced women. The married women were of vast majority (87%), compared to the married but the widow (13%), with highly significant difference between them ($p < 0.01$).

As expected extensive MI was most common (92.73%) closely followed by an anteroseptal

(86.36%) and inferior MI with right ventricular dysfunction as described by others also (12) in married women, but in widow women anteroseptal (13.64%), extensive (7.27%) and inferior MI were the most common types. The treatment included analgesics, anticoagulants and vasodilators.

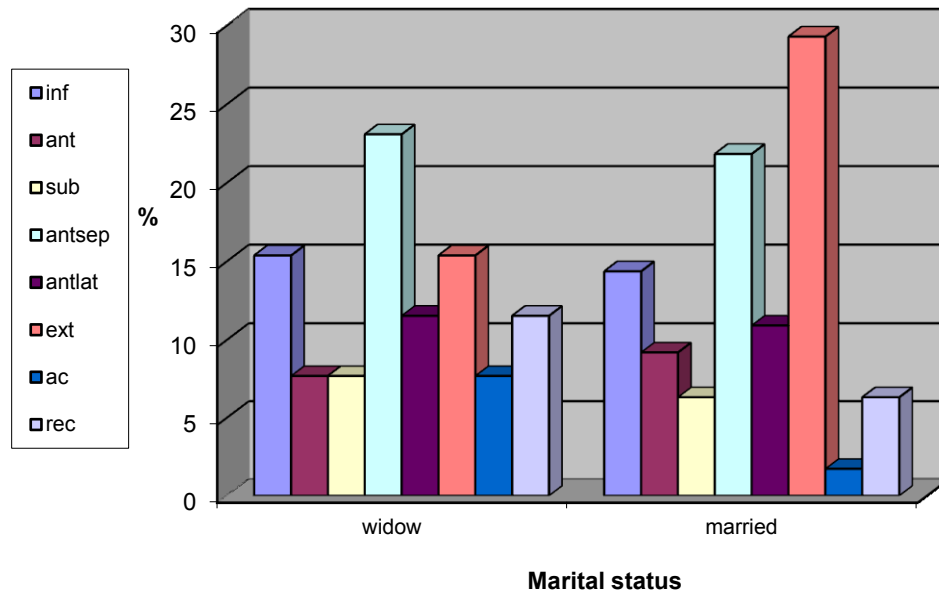


Figure2. Relation of marital status with MI types.

This study included 190 post-menopausal women (95%) while the rest of them were pre-menopausal. The female sex hormones (estrogens) have the protective role against MI, since the incidence of MI in male is much higher than in females in early adult ages. There is highly significance difference between pre- and post-menopausal women ($p < 0.01$). The odds ratio is high in female patients at the age of 45 – 55 years compared to females of pre-menopausal age.¹³ This may be due to the fact that estrogen decreases LDL-cholesterol and increases that of HDL-cholesterol. This explains the protective effect of estrogens against the deposition of atheromatous plaques, where the role of HDL-cholesterol is of prime importance. Post-menopausal women in this study had extensive MI while this type of MI was not the major type in premenopausal women. This may be due to the lower LDL-cholesterol in premenopausal women which otherwise would have produced multi-branch coronary block, as in post-menopausal women. Moreover, relative deficiency of estrogens in post-menopausal women, takes away the protective effect which

is present in pre-menopausal women. The drugs affecting the clotting process used in this study were aspirin + heparin (115 cases – 57.5%), the combination of aspirin, heparin and thrombolytics – streptokinase or alteplase or urokinase_(65 cases – 32.5%), aspirin alone (14 cases – 7%) or heparin/warfarin sodium (6 cases – 3%). Different types of nitrates (glyceryltrinitrate, iso-sorbide mononitrate, and iso-sorbide dinitrate) were the most common drugs used in the treatment. The effective therapy for MI has also been mentioned as combination of antiplatelet and anticoagulant.^{14,15}

The effect of drug treatment on MI types in the hospital demonstrated that 121 patients (60.5%) were relieved of the symptoms/complications, while 76 cases (38%) were not relieved. A negligible minority of patients (3 cases – 1.5%) died during hospitalization.

The triple combination of aspirin + heparin + thrombolytics was the best therapy with 69% relief, followed by antiplatelet alone (57%) and equally by aspirin + heparin (56.5%), and anticoagulant alone (50%).

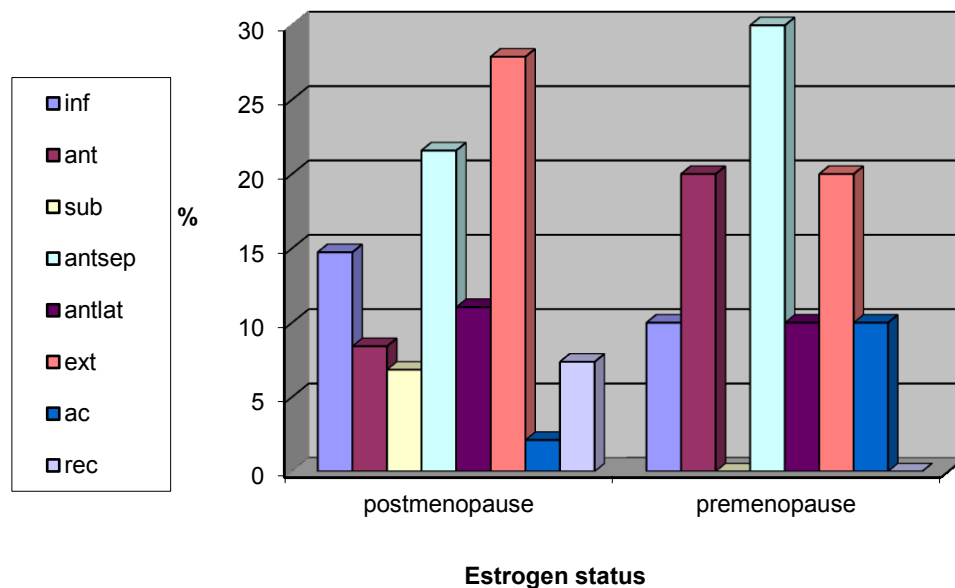


Figure3. Relation of estrogen status with MI types.

Conclusions:

A retrospective clinical study was undertaken to study clinical picture and therapy of different types of MI in 200 married females. The main age groups belonged to age 50-79 years.

The most common of type of MI were extensive and anteroseptal types.

95% of the patients were post-menopausal.

In summary, the best therapy was found to be the combination of antiplatelet, oral or parenteral anticoagulants and thrombolytic.

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