Predictors of Outcome of Patients with Acute Myocardial Infraction

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Abstract

In a retrospecrive study of 61 patients with Acute Myocardial Infarction (AMI) admitted to Tikrit Teaching Hospital, we found that among factors predicting the outcome of these patients during their stay in Coronary Care Unit (died or survived) are , Age Gender Diabetes Mellitus , Hypertension ,History of previous ischemia , Smoking , AMI being Q or non-Q, Season of admission , Site of AMI , but only the last two factors were statistically significant(<0.05).

Introduction

Ischemic heart disease (IHD) and Acute myocardial infarction (AMI) are a major health problem in the developed countries. In most industrialized countries IHD is the commonest cause of death. In England and W ales 30% of all deaths among men and 22% of all deaths among females are the result of IHD. (1)

Most data about the clinico-epidemiological aspects of IHD come from developed countries , because of scanty data from developing countries it is difficult to make comparison with developed countries.(3)

Many developing countries are rapidly changing traditional life styles and adopting instead those living habits held responsible for the high rate of IHD in the developed countries.(3,4)

Many factors affect the short outcome of patients with AMI during their stay in Coronary Care Unit (CCU) , these include Age, Gender, Previous ischemic episodes, functional class on admission , arrhythmias (5), pulmonary congestion, (6,7,8) site and size of AMI, (9,10) diabetes mellitus (DM), and history of smoking.(11,12,13)

We conducted this retrospective study to clarify the factors that predict the outcome of these patients with AMI during their stay in CCU.

Methods & Patients

A retrospective study of 61 patients with AMI admitted to the CCU of Tikrit General Hospital (TGH) with 400 beds including CCU of 8 beds and serve 1/4 of a million population during the period between January 1989 to December 1990.The following informations were collected from the files of these patients admitted during that period, Age, Gender, DM, Hypertension (HT), Previous ischemic attacks, Smoking, Site of AMI, Season of addmition, Type of AMI (Q 0r non

Q). Statistical analysis using Chi Square were utilized to compare between frequencies, the difference was considered significant at the level of 0.05.

Results

The number of patients died or survived in relation to gender is shown in Table 1,more males died but this result is not statistically different (P≤ 0.9). Table 2 illustrates the number of patients who died or survived according to different age groups, this showed that the death rate is increased with increasing age. Regarding the possible effect of DM on the early outcome of patients with AMI is shown in Table3, there is a non statistically significant increase in death rate in patients with history of DM (P≤ 0.7). The possible effect of Hypertension on the outcome of patients with AMI is shown in Table 4, it demonstrates that hypertension has caused more death in patients with AMI but the difference is also not statistically significant (P≤ 0.9). History of previous ischemic attacks shown to have a favorable effect on the short outcome of patients with AMI but the result is statistically not significant (P≤ 0,9). Smoking seems to have protective effect against death in patients with AMI during their stay in the CCU, but also this result is not statistically significant (P≤ 0.75). Statistically different results in number of deaths were found according to the site of AMI and the season of admission of patients to the CCU. The statistical difference is (P≤0.05) for both results. The effect of the type of AMI (Q or non Q) is shown in Table 9.

There is a non statistically significant increase in the rate of death in patients with AMI in CCU with Q wave AMI compared with those with non Q AMI,(P≤ 0.9).

Discussion

The risk factors of developing IHD in general have been well defined and were object of most detailed epidemiological studies.(14) Concerning AMI the factors predicting the short outcome have been the subject of many recent studies and not agreed upon yet .

The variables that had statistically significant association with poor outcome (P: 0.05) were only the site of AMI and the season of occurrence .Among those who died 6 had anterolateral AMI and 5 had anterior AMI . among those survived 15 had inferior AMI and 10 lateral AMI as seen in table No. 7 . the same results has been found by other researchers who showed clear positive association between AMI size and mortality during hospitalization.(15,16)Data from England and Wales and from North America showed that mortality from IHD varies with season . It is consistently higher in winter months . Throughout the year there is inverse relation between mortality from IHD and temperature.(14 In our study we found anon statistically significant association between season and mortality. we found more males died than males, although other studies showed strong sex prediction of death during AMI,(5) this may be due to the small size of our sample. Middle aged patients were at more risk of death which is in agreement with other study.

(5) Diabetic patients were at more risk from dying early during AMI but also the difference is not statistically significant, while other studies showed strong association between DM and early death from AMI and the high frequency of cardiogenic shock during AMI.(11,12,13) Hypertensive patients also were at more risk of early death from AMI but also the result is not statistically significant. we did not come across any reference . addressing the effect of hypertension on the short outcome of AMI. It is of great interest is the finding that patients with previous ischemia by ECG or history were at lower risk of death early from AMI is CCU but also the result is not statistically significant. Other studies showed a strong protective effect of history of previous ischemia on the mortality from AMI. (15) Surprisingly enough we found that among who died only 2 were smokers while 12 survivors were smokers, this contradicts the universal agreement that smokers have high risk of dying than nonsmokers,(16) but in countries where other risk factors are lacking and overall incidence of IHD is low as Japan, smoking appear not to be a risk factor of IHD.(14) but we do not exclude the small size of our sample or the difficulties in getting accurate histories from our patients, also this result may be due to the development of collateral vessels in the coronary circulation. More Q-AMI patients than non-Q AMI patients died but also the result is not statistically significant, while another study showed a strong favorable outcome of non-Q AMI in the CCU. (5)

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Table 1 Gender prediction of outcome

Gender	Died	Survived
Male	9	33
Female	7	12

NS (P ≤ 0.09)

Table 2 Prediction of outcome according to age groups Age groups

Age (Years)	Died	Survived
31—40	zero	1
41—50	2	7
51—60	9	17
61—70	2	17
71—80	3	3

Table 3: prediction of outcome according of to history of DM

	Died	Survived
DM	5	10
No_DM	11	35

NS (P ≤0.07)

Table 4: Prediction outcome according to blood pressure

Blood Pressure	Died	Survived
Hypertensive	8	12
Normotensive	8	33

NS (P ≤O.O9)

Table 5: Prediction of outcome according to history of previous ischemia

Previous Ischemia	Died	Survived
Yes	2	14
No	14	31

NS (P ≤0.09)

Table 6: Prediction outcome according to smoking

H/O Smoking	Died	Survived
Yes	2	12
No	14	33

NS (P ≤ 0.075)

Table 7: Prediction outcome according to the site of myocardial infarction

Site	Died	Survived
Anterior	5	13
Anterolateral	6	7
Inferior	2	15
Lateral	3	10

SS (P ≤0.05)

Table 8: Prediction of outcome according to Season of admission

Season of admission	Died	Survived
Cold (November-May)	11	17
Hot (June –October)	5	28

NS (P<0.05)

Table 9: Prediction of outcome according to Q or non-Q AMI

Q-AMI	Died	Survived
Q	14	32
Non-Q	2	13

NS (P ≤ 0.09)