Summary

Background:

Diabetes is not only a predisposing factor for cardiovascular disease but once diabetic patients develop coronary artery disease (CAD) they have significantly worse outcomes compared to non-diabetic patients. Diabetes is an independent risk factor for a worse outcome after presentation with acute coronary syndrome (ACS). [210]

Objectives:

The primary objective was to analyze the prognostic implication of elevated biomarkers in patients with and without diabetes in predicting three-month morbidity and mortality.

Patients and method:

We studied 80 patients who were admitted for ACS; patients were classified according to the history of DM into two groups; non diabetic group 40 patients and diabetic group 40 patients. The two groups were further classified into another two subgroups according to the presence of elevated markers of myocardial injury at admission; non diabetics with negative biomarkers (ND-) included 20 patients, non diabetics with positive biomarkers (ND+) included 20 patients, diabetics with negative biomarkers (D-) included 20 patients, and diabetics with positive biomarkers (D+) included 20 patients.

Patients were followed up for three months as regard morbidity and mortality.

Results:

Of the 80 patients who were admitted for ACS 40 (50%) patients had a previous diagnosis of diabetes mellitus. Age and sex were similar between diabetic and non diabetic group. Fifty percent of the diabetic patients had elevated biomarkers.

Diabetic patients when compared to non diabetic patients, they had significantly higher frequencies of previous myocardial infarction (50% vs 22.5%, $p < 0.05$) as well as renal insufficiency (17.5% vs 2.5% $p < 0.05$).

Diabetic patients had significantly higher frequency of LV dysfunction at presentation (30% in diabetics vs 7.5% in non diabetics $p < 0.05$), and higher frequency of three vessel disease on admission than non diabetic patients (42.5% vs 20% $p < 0.05$).

As regard in-hospital complications diabetic patients showed significantly higher incidence of LV dysfunction, re-infarction, and death (37.5% vs 15%, 12.5% vs 2.5%, and 10% vs 2.5% respectively $p < 0.05$).

After three months diabetic patients showed significantly higher incidence of LV dysfunction, re-hospitalization for ACS, and death (45% vs 20%, 45% vs 17.5%, and 30% vs 10% respectively $p < 0.05$).

Non diabetic patients who had elevated markers showed higher incidence of LV dysfunction during hospital stay than non diabetic patients without elevated markers (25% vs 5%). Diabetic patients with elevated markers showed also higher incidence of LV dysfunction during hospital stay than diabetic patients without elevated markers (65% vs 10%).

After three months follow up non diabetic with elevated markers patients group showed higher rate of LV dysfunction and death than non diabetic without elevated markers patients group (35% vs 5% and 20% vs 0%). Diabetic patients with elevated markers showed also higher incidence of LV dysfunction, re-hospitalization with ACS, and death than diabetic patients without elevated markers (60% vs 30%, 70% vs 20%, and 50% vs 10%).

There was no significant difference between (ND +) patients group and (D -) patients group as regard in-hospital mortality and morbidity including LV dysfunction, re-infarction, and arrhythmias.

After three months follow up there was also no significant difference between (ND +) patients group and (D -) patients group as regard mortality and morbidity including LV dysfunction and re-hospitalization for ACS.

Conclusion:

From this study, it can be concluded that elevated markers of myocardial necrosis have adverse effects on patients either diabetics or non diabetics on short-term follow up. Diabetic patients with ACS, without elevated biomarkers, have a mortality and morbidity risk similar to patients who are not diabetic but have elevated biomarkers on presentation with ACS; and that diabetic patients with elevated biomarkers are at the highest mortality and morbidity risk.

Limitations of the study:

The potential limitation of this study was that the determination of DM was done by history alone. Thus, the non-diabetic patients group may have included some patients with subclinical insulin resistance. Coronary angiography procedure could not be performed in all patients due to death or refusal. This study was also limited by the small number of patients as well as the short follow-up period of the studied patients.