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Assessment of outcome of high risk Non ST segment elevation Myocardial Infarction in diabetic and non diabetic patients

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ABSTRACT

Background: Diabetic patients with acute coronary syndrome appeared to have worse prognosis than non-diabetic patients.The present study was conducted to assess outcomes of high-risk non-ST elevationacute myocardial infarction in diabetic and non-diabetic patients.

Materials & Methods:136 patients of myocardial infarction of both genders were divided into two groups. Group I were diabetic and group II were nondiabetic. Patients wereclassified according to GRACE score into 3 categories high (>140),intermediate (70–140), and low (1–70), the patients underwentearly emergency, or elective coronary angiography. The extent and the severity of coronary lesionswere assessed by using Gensini score.

Results: group I and group II had 48 males and 44 males and 20 females and 24 females. Hypertension was seen among 36 and 38, family history was positive in 6 and 8, smoking was seen in 5 and 7 in group I and II respectively. The mean Gensini score was 230.4 and 172.4, Grace score was 168.3 and 102.7 and Syntax score was 18.3 and 14.2 in group I and II respectively. In patients of high Gensini and syntax scores only diabetes wasan independent predictor of the extent and severity of coronary arteryobstruction.

Conclusion: There was a significant correlation with angiographic complexity and interventional outcome in patients with non-ST elevation myocardial infarction.

Key words: Acute coronary syndromes, Diabetes, Non-ST elevation myocardial infarction

INTRODUCTION

The relationship between diabetes mellitus and a higher incidence of coronary artery disease is clinically established. Diabetic patients with acute coronary syndrome appeared to have worse prognosis than non-diabetic patients.[1]During hospitalization of diabetic and non-diabetic patients with Non-ST elevation myocardial infarction, the incidence of heart failure was twice in diabetic versus nondiabetic ones. There is positive correlation between diabetes mellitus duration and the risk of developing acute coronary syndromes.[2]

Coronary artery disease (CAD)is theleading cause of morbidity and mortality in patients with diabetes mellitus. Patients with diabetes are more likely to experience acutemyocardialinfarction (AMI) and heart failure, and are at greater risk for dying after an acute cardiac event, than patients without diabetes. These differences may be related to the severity and extent of coronary heart disease in diabetic patients, the extent of left ventricular remodeling, and the presence of significant ventricular dysrhythmias.[3]

There is positive correlation between diabetes mellitus duration andthe risk of developing acute coronary syndromes.An independent relation between the duration of diabetes mellitus andcritically and fatal coronary artery disease has been shown in men.[4]Some studies suggest that coronary artery disease and HbA1c level arepredictors of cardiovascular morbidity and mortality. It is alsounclear whether the negative prognosticimplications of diabetes apply equally topatients with different manifestations ofacute coronary disease, including unstableangina, non–ST-segment elevationAMI (NSTEMI), and ST-segment elevationAMI

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(STEMI).[5] The present study was conducted to assess outcomes of high-risk non-ST elevationacute myocardial infarction in diabetic and non-diabetic patients.

MATERIALS & METHODS

The present study comprised of 136patients of myocardial infarction of both genders. All were informed regarding the study and their written consent was obtained. All were diagnosed based on ECG findings and cardiac biomarkers.

Demographic data such as name, age, gender etc. was recorded. All patients underwent complete history and thorough clinical examination was performed. Grace Score was recorded. Patients were divided into two groups. Group I were diabetic and group II were nondiabetic. Laboratory tests such as CK-MB, TropininI, lipid profile & HbA1cwas calculated. Patients wereclassified according to GRACE score into 3 categories high (>140),intermediate (70–140), and low (1–70), the patients underwentearly emergency, or elective coronary angiography. The extent and the severity of coronary lesionswere assessed by using Gensini score. Results thus obtained were studied statistically.

RESULTS

Table I Demographic profile

Variables	Parameters	Group I	Group II	P value
Gender	Male	48	44	0.05
	Female	20	24	
Hypertension	Yes	36	38	0.91
	No	32	30	
Family history	Yes	6	8	0.01
	No	62	60	
Smoking	Yes	5	7	0.02
	No	63	61	

Table I, graph I shows that group I and group II had 48 males and 44 males and 20 females and 24 females. Hypertensionwas seen among 36 and 38, family history was positive in 6 and 8, smoking was seen in 5 and 7 in group I and II respectively. The difference was significant (P< 0.05).

Graph IDemographic profile

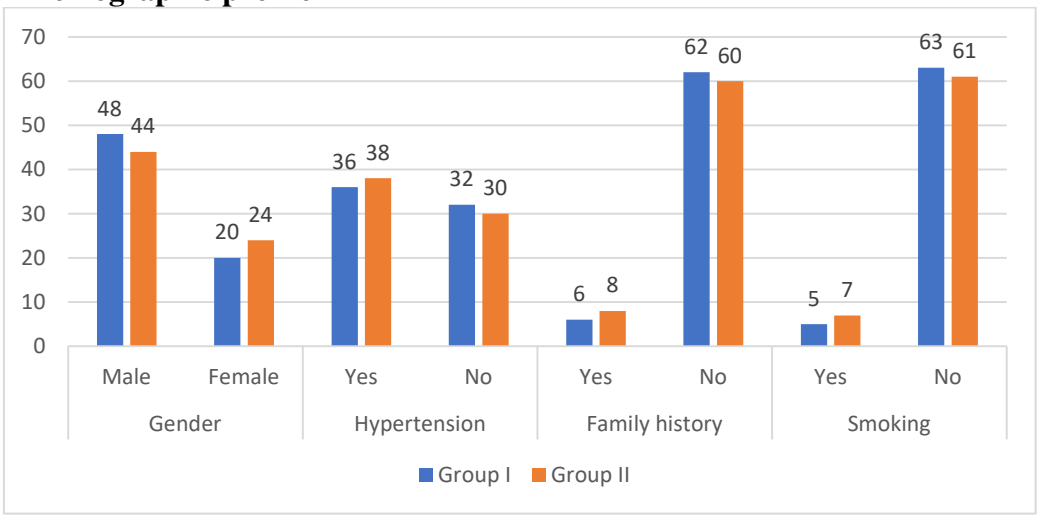

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Table II Comparison of angiographic scores

Parameters	Group I	Group II	P value
Gensini score	230.4	172.4	0.02
Grace score	168.3	102.7	0.04
Syntax score	18.3	14.2	0.05

Table II, graph II shows that mean Gensini score was 230.4 and 172.4, Grace score was 168.3 and 102.7 and Syntax score was 18.3 and 14.2 in group I and II respectively. The difference was significant (P< 0.05).

Graph IIComparison of angiographic scores

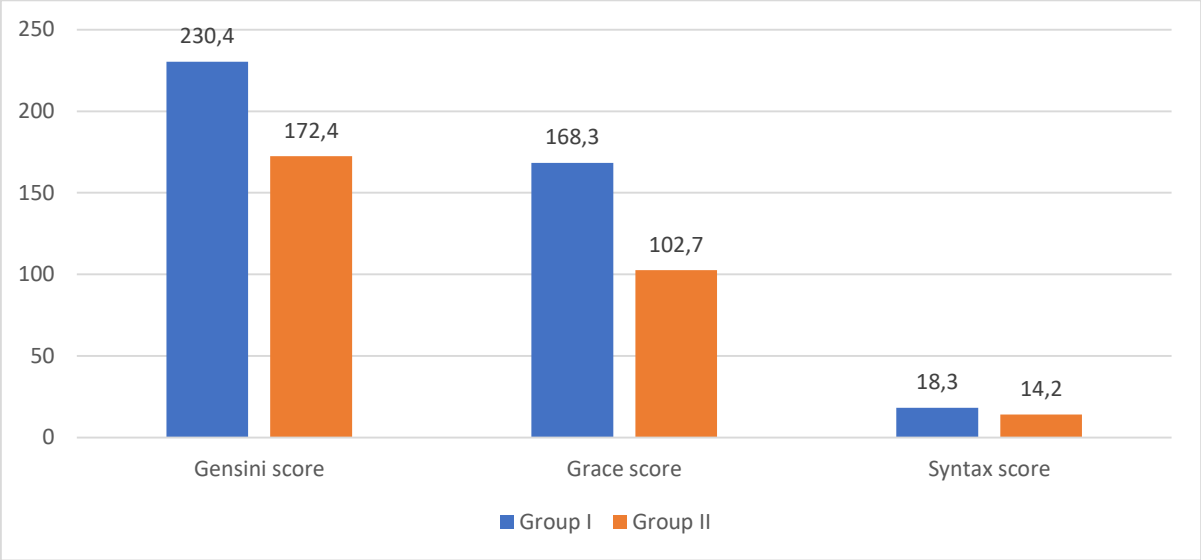

Table III Comparison of different angiographic scores and Grace Score

Score	Low	Intermediate	High	P value
Gensini score	170.2	184.2	218.4	0.05
Syntax score	12.8	14.1	19.7	0.02

Table III shows that in patients of high Gensini and syntax scores only diabetes wasan independent predictor of the extent and severity of coronary arteryobstruction.

DISCUSSION

Coronary artery disease (CAD) is an important medical and public health problem with an approximately 7.2 million deaths/year, or 12% of all deaths worldwide annually and the single most important cause of death in developed countries.[6,7] Rapid urbanization, life style change and economic growth in developing countries have led to a substantial increase in coronary heart disease (CHD).[8] Diabetes mellitus (DM) is an important risk factor for coronary heart disease.[9] Cardiac involvement in diabetes commonly manifest as coronary artery disease (CAD) and less commonly as diabetic cardiomyopathy and cardiac autonomic neuropathy.[10] Compared with non- diabetic individuals, diabetic patients have a twofold to fourfold increased risk for development and dying of CHD.[11]The present study was conducted to assess outcomes of high-risk non-ST elevationacute myocardial infarction in diabetic and non-diabetic patients.

In present study, group I and group II had 48 males and 44 males and 20 females and 24 females. Hypertension was seen among 36 and 38, family history was positive in 6 and 8,

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smoking was seen in 5 and 7 in group I and II respectively. Abomandouret al[12]studied the interventional outcomes of high-risk non-ST elevation acute myocardialin 480 diabetic and non-diabetic patients. They were divided into (272Diabetic and 208 Non-diabetic).Patients were classified according to GRACE score into 3 categories high (>140), intermediate(70–140), and low (1-70), the patients underwent early emergency, or elective coronary angiography within 3 days of admission.There was no significant differencebetween the two groups as regard age and hypertension. Gensini and Grace scores were significantly higher in diabetes. Inpatients of high Gensini and syntax scores only diabetes was an independent predictor of the extent and severity of coronaryartery obstruction.

We found that mean Gensini score was 230.4 and 172.4, Grace score was 168.3 and 102.7 and Syntax score was 18.3 and 14.2 in group I and II respectively. Franklin et al[13]examined differences in these factors, patientswith ST-segment elevation acute myocardial infarction,non–ST-segment elevation acute myocardial infarction,and unstable angina. The studysample consisted of 5403 patients with ST-segment elevationacute myocardial infarction, 4725 with non–STsegmentelevation acute myocardial infarction, and 5988with unstable angina.Approximately 1 in 4 patients presented to participatinghospitals with a history of diabetes. Patientswith diabetes were older, more often women, with agreater prevalence of comorbidities, and they were lesslikely to be treated with effective cardiac therapies thannondiabetic patients. Patients with diabetes who developedan ACS were at increased risk for each hospital outcomeexamined including heart failure, renal failure, cardiogenicshock, and death. These differences remainedafter adjustment for potentially confounding prognosticfactors.

We observed that in patients of high Gensini and syntax scores only diabetes wasan independent predictor of the extent and severity of coronary arteryobstruction. Mahadevaet al[14]found significant association of severe coronary artery disease inpatients with diabetes mellitus.

CONCLUSION

Authors found thatthere was a significant correlation with angiographic complexity and interventional outcome in patients with non-ST elevation myocardial infarction.

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