Angiographic Pattern of Coronary Artery Stenosis in Type 2 Diabetic Patients with Acute Coronary Syndrome

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Abstract

Background: Many studies were conducted in home and abroad on the subject but there is none in Chattogram region of Bangladesh. To unveil the existing situation we have conducted the study which will help better case management.

Materials and methods: Properly diagnosed 54 consecutive type 2 diabetic patients with Acute Coronary Syndrome were selected for study. The study was conducted in 2016 (One year) at a private cardiac center of Chattogram city. After adequate preparation angiography was performed with standard Judkin’s technique. Data were manually managed and statistically analyzed. Results were compared with other similar studies. Informed consent was taken from the patients and the hospital authority before conducting the study. A competent institutional review board approved the protocol.

Results: Sex of the patients were male 85% and female 15%. Age range was 30-70 years. Peak age group was 50-60 years. It was 41%. Mean age was 56±6.8 years. Multiple Vessels Disease (MVD) was the highest 39%. Commonly affected vessel was Left Anterior Descending artery (LAD) 83%.

Conclusion: Diabetes mellitus is a notorious risk factor for coronary artery disease. It causes coronary artery lesions earlier. It significantly causes acute coronary syndrome. So all measures should be taken to prevent and control diabetes mellitus.

Key words: Coronary artery disease; Coronary angiogram; Diabetes mellitus.

INTRODUCTION

Type 2 diabetes mellitus is the number 2 risk factor for coronary artery stenosis1. It increases risk of coronary artery disease by 2-3 times higher than non diabetic patients2. The prevalence of coronary artery disease is not only high but also more severe in diabetic patient than that of non diabetic patients3. Other factors for coronary artery disease are : Hypertension, smoking, Dyslipidemia and positive family history1. Even after control of other risk factors type-2 diabetes mellitus alone increases number of stenosis of coronary arteries4. The relationship between coronary artery disease and diabetes mellitus was established by Seegen J in 18705.

Acute coronary syndrome encompasses both unstable angina and Myocardial Infarction (MI). It is characterized by new onset or rapidly worsening angina on minimal exertion or angina at rest in absence of myocardial damage. In contrast MI occurs when symptoms are manifested at rest and there is evidence of myocardial necrosis as demonstrated by an elevation of troponin or CK-MB isoenzyme3. Diagnosis of Acute Coronary Syndrome was done on the basis of history, sign symptoms, biomarkers ECG and echocardiography evaluation.
**MATERIALS AND METHODS**

A total of 54 type-2 diabetic patients with acute coronary syndrome were selected on the basis of history, clinical features, biomarkers, ECG and echocardiography. The study was conducted in 2017 at a private cardiac center of Chattogram. Critical patients were excluded from the study. After adequate preparation angiography was performed with standard Judkin’s technique. Data were manually managed and t test was used for analysis. Results were compared with previous similar studies. Informed consent was taken from patient and hospital authority. The protocol was approved by a competent Institutional review board.

**RESULTS**

Among the 54 patients male were 85% and female were 15%. Age range of the respondents was 30-70 years. Peak age group was 50-60 years. It was 41% in male and 50% in female. Average 45.5%. Mean age was 56±6.8 years. Multiple Vessel Disease (MVD) was the highest 39%. Single vessel disease was 22% and double vessel disease was 20%. Commonly affected vessel was Left Anterior Descending (LAD) artery. It was 83%. Left Circumflex artery (LCx) stenosis was the second 66% and Right Coronary Artery (RCA) was the third position holder 58%.

**Table I : Age and sex of respondents.**

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Male respondents</th>
<th>Female respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 – 40 Years</td>
<td>07 (15%)</td>
<td>02 (25%)</td>
</tr>
<tr>
<td>40 – 50 Years</td>
<td>12 (26%)</td>
<td>01 (12.5%)</td>
</tr>
<tr>
<td>50 – 60 Years</td>
<td>19 (41%)</td>
<td>04 (50%)</td>
</tr>
<tr>
<td>60 – 70 Years</td>
<td>08 (17%)</td>
<td>01 (12.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>46(85%)</td>
<td>08(15%)</td>
</tr>
</tbody>
</table>

**Table II : Number of stenosed vessels.**

<table>
<thead>
<tr>
<th>Number of vessels stenosed</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No stenosis</td>
<td>10 (19%)</td>
</tr>
<tr>
<td>Single vessel disease</td>
<td>12 (22%)</td>
</tr>
<tr>
<td>Double vessel disease</td>
<td>11 (20%)</td>
</tr>
<tr>
<td>Multiple vessel disease</td>
<td>21 (39%)</td>
</tr>
<tr>
<td>Total</td>
<td>54 (100%)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Average age of respondents of present study was 56±6.8 years. Similar result was found in the study conducted by Barzani. It was 59.4±9.2 years. There was difference regarding sex in between above studies (Male 85% VS 49.3% and female 15% VS 49.3%). The difference is significant (p=0.02). In both the studies triple vessel disease ranked the highest position (39% VS 60%). The difference was significant (p=.02). According to Varghese K et al it was 27%. About ranking of stenosed vessel left anterior descending artery ranked the first position in both the studies (83% VS 89%). However the differences was not significant (p=0.1).

**CONCLUSION**

Diabetes mellitus is the number 2 risk factor for development of coronary artery disease. It causes stenosis earlier and number of vessel involvement and severity of stenosis both are enhanced by diabetes mellitus type 2. So all out measures should be taken to prevent and control diabetes mellitus.

**DISCLOSURE**

All the authors declared no competing interest.