

## Comparison of Short Term Morbidity and Mortality of Diabetic Patients Undergoing Elective PCI, Single vessel vs. Multi-vessel disease

K.E.Arrabbat, M.M.Ali, A.M.Bendary and A.M.Rahman  
Cardiology Dept., Faculty of Medicine, Benha Univ., Benha, Egypt  
E-Mail:ahmsrahman@yahoo.com

### Abstract

The part of PCI has been developing in the course of the most recent twenty years. Coronary stent implantation has improved clinical result of diabetic patients contrasted and expand angioplasty, principally as the aftereffect of a decrease in intense inconveniences and restenosis rate. Present investigation planned to decide the momentary results as respects major antagonistic heart and cerebral occasions MACE: (passing, intense coronary disorder: myocardial localized necrosis and temperamental angina ,cerebrovascular stroke, target vessel revascularization) in diabetic patients when contrasted with single vessel ailment and multi vessel malady going through elective percutaneous coronary mediation (PCI) The current examination was directed on 60 patients alluded to the catheterization research center division at Benha University Hospital for elective PCI. Patients were sub partitioned into 2 gatherings: Group A: 30 diabetic patients with single vessel infection. Gathering B: 30 diabetic patients with multi vessel infection. Every patient was followed up clinically for a quarter of a year after elective PCI. The enlistment was done from April 2018 to September 2018 in Benha University Hospital. As per standard segment and clinical qualities contrasts was not huge between the two gatherings. Likewise, there was no distinction in hazard factors conveyance between the two gatherings. At long last, after PCI in the two gatherings the outcomes in present moment follow up was that frequency of MACEs in multi vessel bunch was higher than single vessel group.10% was the rate of MACE in bunch B while it was 3% in bunch A. One case kicked the bucket in bunch B while no passing was recorded at bunch A. Chest torment was more recorded at bunch B by 3 cases while 1 case at bunch A. The examination indicated higher occurrence of momentary dismalness and mortality in diabetic patients go through PCI with numerous vessel sickness more than single vessel malady

**Key words:** CAD risk factors, Coronary angiography, percutaneous intervention.

### 1.Introduction

Coronary vein malady (CAD) is a significant reason for death in created nations, and turning into a significant reason for death additionally in creating nations. This might be because of the rising predominance of numerous CAD hazard factors, for example, diabetes, which is one of the most significant danger factor for CAD. The pervasiveness of diabetes mellitus is expanding universally, and it has arrived at pandemic levels in the Middle East and overall [1].

Patients with diabetes have 2-to 4-overlay higher danger of creating CAD than non-diabetics [2].

Diabetic patients show an expanded danger for advancement of atherosclerotic CAD for some, reasons, including hyperglycemia, dyslipidemia and insulin opposition, which lead to brokenness of endothelial cell and vascular smooth muscle [3, 4] , platelet work debilitation and anomalous Coagulation [5]. Diabetic patients display other danger factors for CAD also, similar to hypertension and corpulence. Patients with diabetes have lipid-rich atherosclerotic plaques, which are more defenseless against break than the plaques in non-diabetic patients [6, 7].

After stent implantation, diabetic patients are at an expanded danger of reformist coronary course illness and coronary conduit re-stenosis.

Medication eluting stents (DES) are specially utilized over exposed metal stents (BMS) in diabetics since DES altogether diminish the rate of re-stenosis and target vessel revascularization (TVR) [8].

### 2. Patient and methods

The study was applied to patients with diabetes mellitus who were suffering from coronary artery disease and referred for coronary angiography and percutaneous coronary intervention (PCI). The patients were divided into two groups: group (A) included 30 diabetic patients with single vessel disease and group (B) included 30 diabetic patients with multi vessel disease. Each patient was followed up clinically for three months since the recruitment. The recruitment was carried out from April 2018 to September 2018 in Benha University Hospital.

#### 2.1 Inclusion criteria

The study included sixty (60) diabetic patients with stable coronary artery disease.

#### 2.2 Exclusion criteria

Patients with history of previous cerebrovascular stroke, old left bundle branch block, atrial fibrillation, intolerance to aspirin or thienopyridine derivatives such as clopidogrel or ticlopidine and Patients with other fatal comorbidities e.g. malignancies and incapable of resuming follow up.

#### 2.3 All patients were subjected to the following

- I- History
- II - Thorough Physical Examination
- III-Laboratory Investigations Random blood sugar, Fasting and post-prandial blood sugar, Glycated hemoglobin, Full lipid profile, Cardiac enzymes, Renal profile, Complete blood count
- IV-Electrocardiogram (ECG)
- V-Chest X – Ray

VI-Baseline Transthoracic Echocardiographic Examination

VII-Coronary Angiography

Left sided heart catheterization with coronary angiography was acted in the angioplasty meeting for every patient gathering. Angiographic cine pictures were recorded on minimal circle for resulting investigation.

Quantitative coronary angiography completed on-line preceding and after percutaneous angioplasty method utilizing a PC helped mechanized edge discovery calculation for both stented fragment just as non-stented divides.

Sores with lumen stenosis more than or equivalent 70% was viewed as noteworthy for mediation. As indicated by number of influenced vessels, the cases were isolated to single vessel illness, multi-vessel ailment.

The accompanying estimations were gotten: Reference distance across (RD), Minimal lumen breadth (MLD), the sore length, Nominal stent width.

VIII-Medical therapy.

IX-Clinical development

**1- In-clinic (post mediation) as respect**

Major Adverse Cardiac Events (MACE) which were characterized as:

1- Death (heart and non-cardiovascular).

2-Non-deadly myocardial localized necrosis.

Myocardial dead tissue (MI) was analyzed by an ascent in the creatine kinase level to more than double the upper typical cutoff along with an expansion in creatine kinase-MB.

3- Any recurrent revascularization.

Rehash revascularization was characterized as all recurrent careful or percutaneous mediation, including revascularization methods performed to address sections not treated in the record technique. Clinically-determined recurrent revascularization was characterized as any mediation (target injury, target vessel, and non-file vessel) inspired by a noteworthy luminal stenosis (> 70% width stenosis) within the sight of anginal side effects as well as demonstrated myocardial ischemia by non-obtrusive testing.

Hemorrhagic complexities, repeat of angina chest torment with sequential heart markers during the first 24 hours and 12 lead ECG.

**2-Post release**

All the patients were exposed to a quarter of a year clinical follow up for Major Adverse Cardiac Events.

**3. Results and discussion**

Results concerning risk factors and demographic data: The age ranged from 35 to 72 years in group A and from 44 to 63 years in group B. Both group included 20 males and 10 females with no statistically difference (P value >0.05).

The first group included 20 patients were male and 10 patients were female with average age of 59.45 ± 6 747 and the second group consisted of 20 male patients and 10 female patients with average age of 57.95 ± 7. 287.

As regard to risk factors, there was statistically significant difference between both groups concerning hypertension 18 patients (60%) in group A and 26 patients (85%) in group B with (P value> 0.05). Smoking 14 (45 %) in group A and 20 (65%) in group B with (P value>0.05), while there was statistically significant difference between both groups concerning hyperlipidemia as 11 (35%) patients with hyperlipidemia were included in group A and 26 (85 %) in group B with (P value < 0.05).

Results concerning type of diabetes mellitus: More cases with NIDDM (type II) were found in the whole study with 19(65%) cases in group A and 16(55%) in group B showing a statistically insignificant difference between both groups with (P value >0.05).

There was no statistical difference between the 2 groups regarding the values of serum creatinine.

Echocardiographic data: There was no statistical difference between the different study groups regarding the echocardiographic data.

**Results concerning early in-hospital MACE or/and other complications:**

As regard the early in-hospital complications, no cases were reported during the post PCI hospital stay of the patients in both groups.

Results concerning the three months clinical follow up Table (1).

The three months clinical follow up for the sixty patients was done and the results revealed insignificant statistically difference between both groups concerning Major Adverse Cardiac Events (MACE). Two cases occurred in group B (stroke and target lesion revascularization "TLR") while no cases were reported in group A (2 (6.7%) and 0 (0%) respectively with P value > 0.05). Concerning stroke, it was reported 2 months after the procedure while the TLR was reported 3 months post procedure and patient was referred for CABG.

**Table (1)** Comparison between both groups as regard Clinical Outcome.

MACE	Group A N=30	Group B n=30	X <sup>2</sup>	P
NO	30(100 %)	28 (93.3%)	1.4	>0.05
YES	0(0%)	2 (6.7%)		
Death	0	1 (3.3%)		
Revascularization	0	1 (3.3%)		
MI	0	0		

#### 4. Discussion

The distinguishing proof of danger factors gives a way to diminishing CAD hazards, through the decrease of modifiable danger factors, and better treatment choices, through more exact assurance of by and large danger status [9].

In diabetic patients, the conclusion of CAD for the most part is missed or postponed in light of the fact that the normal side effects of cardiovascular ischemia are frequently conceal. Subsequently, multivessel atherosclerosis frequently is available before ischemic indications happen and before treatment can be initiated [10].

The motivation behind our examination was to audit the involvement in CAD in diabetic patients who went through percutaneous coronary intercession in single vessel infection and multi-vessel malady at Benha University Hospital concerning hazard factors, clinical introduction, angiographic highlights according to grimness and mortality during momentary clinical perception.

In our investigation, 60 patients were assessed in which 33.4% were females and 66.7% were guys with mean age of 55 and 53 years individually, they were given image of coronary corridor ailment and went through coronary angiography and intercession.

The examination populace was isolated into two age bunches too: under 50 years, and over 50 years old.

We noticed that, the commonness of single vessel illness in diabetic patients was more at age bunch under 50 years (60%) while the pervasiveness of multi-vessel ailment in diabetic patients was more at age bunch over 50 years (65%).

This finding exhibited that frequency of single vessel sickness was more predominant in youthful and middle age gatherings.

The entirety of our patients went through coronary Percutaneous intercession, and it was noticed that LAD association was higher than different conduits, trailed by RCA and LCX, this finding was like one review study directed by Harsh W, et.al, included 100 successive patients who went through elective PCI at their heart catheterization research facility, they found that LAD sores were the most widely recognized among the influenced coronaries and it was found in 68 % of the contemplated populace [11].

Association of the proximal fragment of the corridor was higher than different sections, particularly in LAD, LCX and RCA in inverse to LMCA in which distal portion stenosis was higher than proximal fragment.

Little vessel ailment (negligible and inclining branches) had huge rate however not exactly significant corridors (LAD, RCA, LCX) and more than LMCA.

As respect to the sort of diabetes mellitus, more cases with NIDDM (TYPE II) were found in the entire investigation with 65% of cases in bunch An and 55% in bunch B.

The presence of diabetes as a danger factor is like all past International examinations which demonstrated that diabetes is an amazing successful factor being developed of CHD [12].

#### 4. Conclusion

The investigation demonstrated higher occurrence of short dismalness and mortality in diabetic patients who go through PCI with numerous vessel illness more than single vessel ailment.

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