UNPROTECTED LEFT MAIN STEM STENTINGAN EXPERIENCE FROM OUR CENTRE

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ABSTRACT

Background: Coronary artery bypass grafting (CABG) has long been regarded as the treatment of choice for unprotected left main coronary artery (LMCA) disease. Left main stem stenting remains a dilemma despite the latest developments in percutaneous coronary stenting. Percutaneous coronary intervention can be a safe and effective method for revascularization in this subset of patients however it has typically been reserved for poor surgical candidates. Recently some randomized data has emerged comparing unprotected left main stem stenting to CABG. We wanted to share our experience regarding left main stem stenting as Army Cardiac Centre is a high-volume Centre, has skilled operators and cardiac surgical backup.

Objective: To share experience of Left main stem stenting from Army Cardiac Centre Lahore and determining that left main stem stenting is a suitable alternative to coronary artery bypass grafting in selected patients.

Study Design: A observational study.

Place and Duration of Study: Army Cardiac Centre Lahore during the period 1st January 2013 to 26 May 2018.

Material and Methods: Fifty Six patients who underwent left main stenting at Army Cardiac Centre Lahore during the period 1st January 2013 to 26 May 2018 were included in the study. A list of variables was devised to be included in the study. All patients underwent provisional left main stem stenting.

Results: Out of 56 patients 14 had ostial and midshaft disease while rest had distal left main stem disease. A provisional stenting approach was taken in all of the patients. Single stent was used in 50 patients while 6 patients went under bifurcation stenting. All patients had TIMI III flow in both Left Anterior Descending (LAD) and Left Circumflex (LCx) arteries after stenting.

Conclusion: Left main stenting is a safe procedure in selected patients however technique, operator skill and cardiac surgical backup play a vital role in the success of this procedure.

Keywords:

INTRODUCTION

Significant left main stem disease can be present in 4 to 6 percent of patients undergoing coronary angiography[1]. The left main stem supplies a major portion of myocardium and its disease can be very fatal owing to serious arrythmias, left ventricular dysfunction and cardiogenic shock[2]. Previously randomized trials comparing CABG and medical treatment for left main stem disease have favoredCABG[3]. Percutaneous coronary intervention of left main stem with newer generation stents can be a reasonable alternative to CABG according to the recent data[4]. However, the outcomes of PCI were acceptable only in the patients with coronary artery disease of low or intermediate anatomical complexity[5]. Currently the guidelines suggest calculation of syntax score for left main stem or multivessel revascularization. For bifurcation lesions PCI a stent deployment in the main vessel only is recommended, followed by provisional balloon angioplasty with or without stenting of the side branch[6]. The current recommendations direct PCI for left main stem to be based on the SYNTAX score. The recommendation is Class I, Level of Evidence B for low, Class IIa, Level of Evidence B for intermediate, and Class III, Level of Evidence B for high score. A Heart Team approach for deciding revascularization strategies for LMCA disease is stressed[7].

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MATERIAL AND METHODS

We conducted a observational study in Army Cardiac Centre Lahore involving patient undergoing Percutaneous coronary intervention for left main stem stenting.

Inclusion Criteria

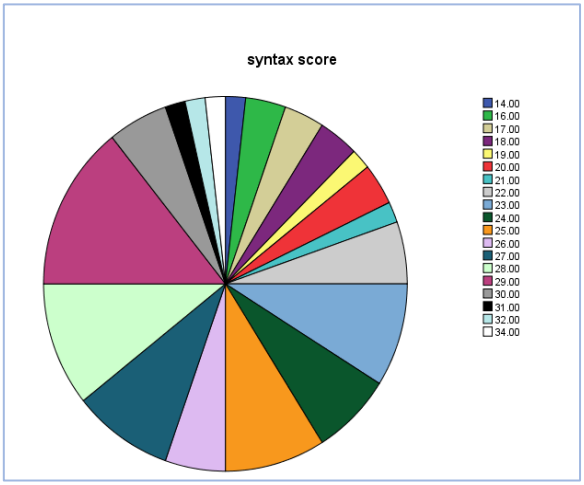
- Patients between the age of 40 and 80 years.
- Unprotected Left Main Stem disease angiographically greater or equal to 50 percent which was symptomatic or ischemia documented on stress imaging.
- Patients with low bleeding risk.

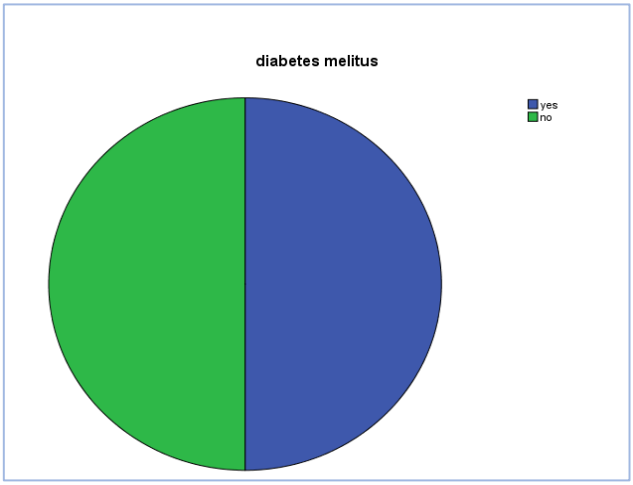
Table-I: Characteristics of the patients.

Characteristics	N=56
Female Sex No. (%)	13 (23.2)
Age (years)	61 ±17
LVEF (%)	45 ± 20
Syntax Score – Mean	24 ± 10
≥ 22	42
Diabetes Mellitus (%)	28 (50)
Ostial and Midshaft (%)	25 (44.6)

Exclusion Criteria

- Patients who were unwilling or unable to take long term dual antiplatelet therapy.





- Patients having Ejection Fraction <25%.
- Patients having syntax score greater than 34.

Procedures

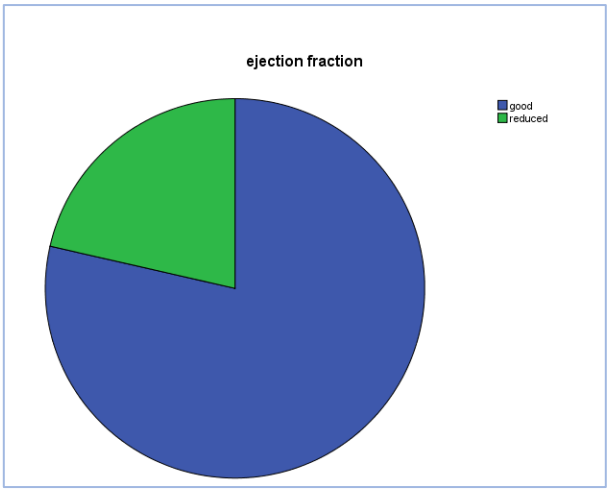
Fifty-six patients went under left main stem stenting. Fourteen of these patients had ostial and midshaft disease only while rest had involvement of distal left main stem with ostium of either LAD or LCx involved. Patients were brought in catheterization lab with all the necessary prerequisites. Intra-aortic balloon pump (IABP) was standby for emergency procedures. Provisional stenting was done for all of these patients. A single stent was used in 50 patients while 6 patients went under bifurcation stenting. Proximal optimization technique was done for all of the cases. All patients received newer generation evorilumus or biolimus eluting stents. Intravascular ultrasound was used for all of the patients to achieve optimum luminal area for each vessel and guiding the stent diameter used. IABP was needed for only 2 of the patients. Right coronary artery (RCA) was involved in 15 of the patients which was stented at a different time than LMS stenting. Operators with experience in Left main stem stenting performed the procedures. Radiation and contrast exposure of the patients was kept to as minimum as possible. Patients after the procedure were shifted to Critical Care Unit where experienced staff and duty doctors monitored and managed the patients post PCI. Forty-nine patients out of 56 were discharged the following day. Rest of the patients were discharged within a week of procedure. None of the patients had any cardiac complaints on discharge. Patients were advised

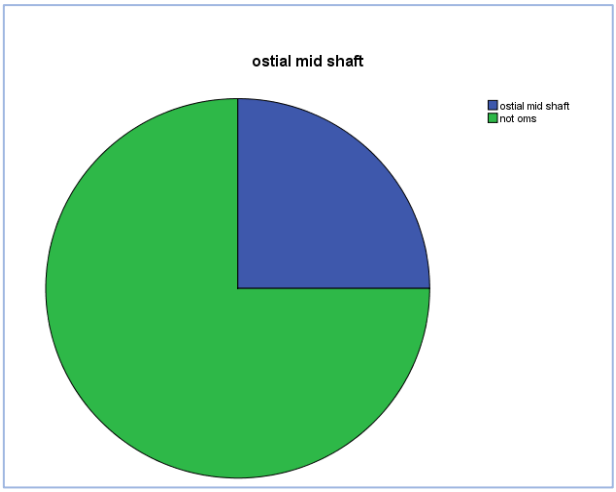
strict compliance with medications and follow up plan was given.

RESULTS

In Hospital Outcomes

All the patients who went under Left main stem stenting with either Single stent or two stents had TIMI III flow in LAD and LCx after the procedure was completed. Forty-nine of the total patients were discharged on the next day while remaining had hospital stay of less than a week. No serious complication was reported for any patient.





About one third of the patients had reduced ejection fraction.

Late Clinical Outcomes

During the clinical follow-up sessions and hospital visits, the results concluded that out of 56 patients only 4 had angina ranging from CCS I to CCS II at 06 months. Rest of the patients were asymptomatic at 06 months of clinical follow up. None of the patients had non-fatal MI, stroke or death.

DISCUSSION

Percutaneous intervention for left main stem disease is the focus of interest for interventional cardiologists around the world. Numerous trials are ongoing which will affect the guidelines in days to come. Our Centre experience shared here reinforced the ongoing discussions in favor of percutaneous left main stem revascularization. Several factors play a role in the long-term outcomes of LMS stenting. The SYNTAX score, initial presentation of the patient and left ventricular ejection fraction are the main factors contributing toward the long-term outcome of the patient[8]. Although there are arguments regarding the long-term safety of drug eluting stents (DES), the likelihood of late or very late thrombosis is still the main issue limiting wide spread use of DES, especially for unprotected LMS disease. No study has shown a benefit of bare metal stent (BMS) over DES for LMS stenting[9-11]. Dual antiplatelet therapy plays a vital role to prevent this disastrous complication[12]. Judicious use of antithrombotics should also be considered for complex lesion anatomy or unstable coronary conditions. The use of glycoprotein IIb/IIIa inhibitor may play a vital role in dropping procedure-related thrombotic complications including death or MI[13]. Latest researches, although they are limited, have demonstrated the promising procedural and mid-term safety and effectiveness of DES compared with BMS or CABG[4,5,14]. With these results, PCI with DES will gradually increase and can be suggested as the dependable alternative to bypass surgery for patients with unprotected LMS stenosis, especially as the first line-therapy for ostial or shaft stenosis[15]. Although bifurcation stenosis remains challenging using the percutaneous approach, morestudies into new procedural

techniques, new dedicated stent platforms, and better anti thrombotic treatments may improve patient outcome. Further randomized studies will help imparting more confidence in the long-term safety, durability, and efficacy of percutaneous therapy in LMS disease.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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