OUTCOMES OF SUCCESSFUL VERSUS UNSUCCESSFUL PERCUTANEOUS CORONARY INTERVENTION IN CHRONIC TOTAL OCCLUSIONS: A TWO YEAR STUDY

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ABSTRACT

Objective: To determine the clinical outcomes of successful versus unsuccessful PCIs in CTOs.
Study Design: Single center, comparative cross-sectional study.
Place and Duration of Study: Army Cardiac Center, Lahore from January 2017 till December, 2018.
Material and Methods: A total of 218 patients of PCI for CTO with native CAD were recruited in our study. Patients with CTO lesion ≥3 months were included in our study. All the included patients had CTO lesion ≥3 months. All Patients information was recorded. Patients were followed for 2 year. Data was entered and analyzed in SPSS-21.
Results: We enrolled 218 patients, 200 (91.3%) were male patients while 18(8.2%) were females. Mean age of patients was 58.5 ± 9.4 years and range 37-87 years. 103 (47.0%) patients were hypertensive, 93 (42.7%) were smokers and 89 (40.8%) were diabetic. Out of 218 PCIs in CTOs successful were 14 7(67.4%) while unsuccessful were 71 (32.6%). The comparison between the two groups showed that gender, arteries involved, J-CTO score and initial approach to the lesion were found to be statistically significant (p<0.05). Most frequent reason of failure of procedure was inability of wire to cross the CTO lesion 65 (91.5). No deaths were reported during the procedures.
Conclusion: With increasing experience and better equipment recanalization of CTO coronary lesions is a safe and effective treatment option for patients with persistent Angina even on appropriate medical treatment.

Keywords: Chronic total occlusion; Follow-up, percutaneous coronary intervention; Coronary artery disease; Outcome.

INTRODUCTION

A wide majority of patients had CTO while having angiography for CAD[1]. In recent times PCI is the best management for CTO Ptients[2]. But this procedure has its unsuccessful rates. CTO are often treated medically or through bypass[3-5].

But many researches showed that CTO with PCI has many successful outcomes and patient improvements[6-10]. The objective of our study is to compare the results of successful vs unsuccessful PCI in CTO.

METHOD AND MATERIALS

This comparative cross-sectional study was conducted at Army Cardiac Center, Lahore. Patients who were going PCI for CTO in our study duration, were included in our study. Patients with CTO lesion ≥3 months were included in our study. All the included patients had CTO lesion ≥3 months. All Patients information was recorded. Patients were followed for 2 year. Data was entered and analyzed in SPSS-21.

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RESULTS

We enrolled 218 patients, PCIs in CTOs were successful 147(67.4%) while unsuccessful were 71 (32.6%) as shown in fig.

Out of 218 patients, 200 (90.47%) were male patients while 18 (9.52%) were females. Mean age of patients was 58.5 ± 9.4 years and range 37-87 years. 104 (47.7%) patients were hypertensive, 93 (42.7%) were smokers and 89(40.8%) were diabetic as shown in table-I.

The comparison between the two groups showed that were gender, arteries involved, J-CTO score and initial approach to the lesion were found to be statistically significant (p<0.05). Most frequent reason of failure of procedure was inability of wire to cross the CTO lesion 65(91.5). No deaths were reported during the procedures as summarized in table-II.

Table-1 showing demographic and clinical outcomes

Variables	Successful PCI-CTO Group 147(67.4%)	Unsuccessful PCI-CTO Group 71(32.6%)	*p*-value
Age (mean ± S.D)	57.7±9.1	60.2 ± 10.0	0.65
Gender Male Female	 133 (90.47%) 14 (9.52%)	 67(94.3%) 4(5.6%)	0.03
Smokers	53 (36.05%)	40(56.3%)	0.15
Diabetes Mellitus	44 (29.9%)	45(63.3%)	0.36
Hypertension	74 (50.3%)	29(40.8 %)	1.50
Previous CABG	3 (2.04%)	3(2.04%)	0.85

Table-2: Showing procedural outcomes

Variables	Successful PCI-CTO Group 147 (67.4%)	Unsuccessful PCI-CTO Group 71(32.6%)	*p*-value
J-CTO score (mean ± S.D)	2. 5 ± 0.6	2.9 ± 0.2	<0.01
No of stents (mean±S.D)	1.7 ± 0.6	-	1.24
Arteries Involved • LMS • LAD • LCX • RCA	 1 (0.007%) 53 (36.0%) 25 (17.0%) 68 (46.2%)	 - 20 (28.1%) 14 (19.7%) 37 (52.1%)	0.01
Access Site • Radial • Femoral • Both	 88 (59.8%) 44 (29.9%) 15(10.2%)	 33 (46.4%) 31 (43.6%) 7 (9.8%)	0.50
Initial Approach to • Lesion • Antegrade • Retrograde	 144(97.9%) 3(2.04%)	 70 (98.59.%) 1 (1.4%)	0.04
Major Complications Arrhythmias Requiring Treatment • Wire Induced Perforation • Managed Conservatively	 26(17.7%) 4(2.7%)	 3(4.2%) 3(4.2%)	0.50
Reasons for Procedure Abandoning or Failure • Wire couldn't Cross • Balloon couldn't Cross • Excessive Contrast as Operator Discretion	 - - -	 65(91.5%) 4(5.6%) 1(1.4%)	0.07

DISCUSSION

We did a follow-up study of two years. Out of which 147 were successful while 71 were unsuccessful PCI on CTO. HTN and diabetes were more common in unsuccessful group. Two year follow up showed no new MI in patients.

In our research was MACE found to be was 14.2%, which was more as compared to other

studies (5.1% in Oli-vari *et al* and 1.9% in Rathore *et al* study)[11-15]. MACE was not different in our both groups but Chen *et al* and Hoyeexhibited

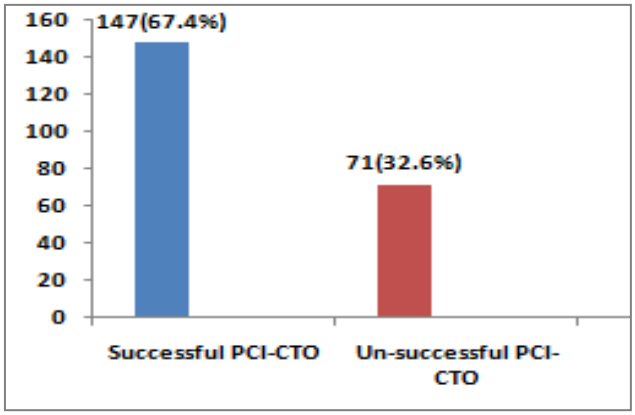

Figure: Frequency of both proceedures.

more MACE in unsuccessful PCI group[16].

CONCLUSION

With increasing experience and better equipment recanalization of CTO coronary lesions is a safe and effective treatment option for patients with persistent Angina even on optimal medical treatment.

CONFLICT OF INTEREST

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

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