Table 1. Procedural Characteristics and In-hospital Outcomes in Patients on Dialysis - Stratified by Use of Orbital and Rotational Atherectomy

Variable Name	OA (N=31)	RA (N=31)	P value
Procedural Outcomes:			
Fluoroscopy Time (min)	21.1±9.3	23.6±10.8	0.35
Contrast Volume (ml)	163.3±71.6	147.0±61.1	0.34
Safety Outcomes:			
Significant Dissection	0 (0%)	1 (3.2%)	0.31
Perforation	0 (0%)	0 (0%)	N/A
Cardiac Tamponade	0 (0%)	0 (0%)	N/A
Vascular Complications	1 (3.2%)	0 (0%)	0.31
Primary Outcome:			
In-Hospital Mortality	0 (0%)	1 (3.2%)	0.31
Secondary Outcomes:			
Myocardial Infarction	3 (9.7%)	6 (19.3%)	0.28
Cardiogenic Shock	1 (3.2%)	2 (6.4%)	0.55
Congestive Heart Failure	0 (0%)	1 (3.2%)	0.31
Composite of Stroke	0 (0%)	0 (0%)	N/A
Blood Transfusion	4 (12.9%)	5 (16.1%)	0.72
Bleeding Within 72 Hours	1 (3.2%)	1 (3.2%)	1.00
Conversion to CABG	0 (0%)	0 (0%)	N/A
Length of Stay (Days)	4.4±7.0	5.5±9.4	0.58

CRT-100.30

Clinical Outcomes of Atherectomy Prior to Percutaneous Coronary Intervention in Patients with Acute Coronary Syndrome (COAP-ACS Study)

Evan Shlofmitz,[1] Rajkumar Doshi,[2] Amitkumar Patel,[2] Perwaiz Meraj[2]
[1]Cardiovascular Research Foundation, New York, NY; [2]Northwell Health, Manhasset, NY

BACKGROUND Patients with coronary artery calcification (CAC) undergoing percutaneous coronary intervention (PCI) can often benefit from treatment with atherectomy for lesion preparation. Calcified coronary lesions in patients presenting with acute coronary syndrome (ACS) increase the risk and complexity of successful PCI. We sought to examine the safety and efficacy of atherectomy modalities in patients with CAC presenting with ACS.

METHODS This prospective, observational, multicenter study assessed OA vs. RA in patients with CAC presenting with STEMI and NSTEMI. Thirty-five thousand five hundred ninety patients from 5 tertiary-care hospitals who had PCI between January 2011 and April 2016 were identified. Patients with ACS who had OA or RA prior to PCI were included in our analysis (n=149; 140 matched), and in-hospital outcomes were assessed.

RESULTS There was no significant difference in the primary endpoint, death on discharge (0% vs. 2.9%, p=0.15). Multivariate adjusted analysis demonstrated statistically significant decreased incidence of heart failure (1.4% vs. 11.4%, p=0.01), fluoroscopy time (20.7±8.2 vs. 25.0±13.5 min., p=0.02) and length of stay (2.5±4.5 vs. 5.7±6.5 days, p<0.001) with OA.

CONCLUSION In this first head-to-head analysis of ACS patients with CAC undergoing atherectomy prior to PCI, there were no significant differences in major adverse cardiac events or procedural complications. OA was associated with significantly shorter length of stay with decreased procedural fluoroscopy time compared with RA. Multicenter randomized studies are needed to confirm the optimal atherectomy strategy in ACS patients.

Table 1. Procedural Characteristics and In-hospital Outcomes in Patients with NSTEMI - Stratified by Use of Orbital and Rotational Atherectomy

Variable Name	OA (N=70)	RA (N=70)	P value
Procedural Detail:			
Bifurcation Lesion	6 (9%)	13 (1.8%)	0.10
Lesion Length (mm)	25.2±12.5	26.8±13.0	0.45
Lesion Diameter (mm)	2.6±0.5	2.7±0.4	0.40
Procedural Characteristics:			
Pre-PCI LVEF (Mean value in %)	44.9±12.9	46.4±13.0	0.49
Heparin use	55 (78.6%)	48 (68.6%)	0.18
Bivalirudin Use	38 (54.3%)	38 (54.3%)	1.00
Femoral Artery Access	46 (65.7%)	47 (67.1%)	0.35
IABP during the procedure	8 (11.4%)	7 (10%)	0.78
Procedural Outcomes:			
Fluoroscopy Time (min)	20.7±8.2	25.0±13.5	**0.02**
Contrast Volume (ml)	153.3±65.2	154.7±58.1	0.89
Safety Outcomes:			
Significant Dissection	0 (0%)	0 (0%)	N/A
Perforation	0 (0%)	0 (0%)	N/A
Cardiac Tamponade	0 (0%)	0 (0%)	N/A
Vascular Complications	0 (0%)	0 (0%)	N/A
Primary Outcome:			
In-Hospital Mortality	0 (0%)	2 (2.9%)	0.15
Secondary Outcomes:			
Myocardial Infarction	8 (11.4%)	11 (15.7%)	0.46
Cardiogenic Shock	4 (5.7%)	6 (8.6%)	0.51
Congestive Heart Failure	1 (1.4%)	8 (11.4%)	**0.01**
Composite of Stroke	0 (0%)	0 (0%)	N/A
Blood Transfusion	8 (11.4%)	8 (11.4%)	1.00
Bleeding Within 72 Hours	6 (8.6%)	5 (7.1%)	0.75
Conversion to CABG	0 (0%)	2 (2.9%)	0.15
Length of Stay (Days)	2.5±4.5	5.7±6.5	**<0.001**

CRT-100.31

Utility of Temporary Pacing Wire in Patients Undergoing Rotational Atherectomy

Hoyle L. Whiteside III, Supawat Ratanapo, Tarun Sharma, Arun Nagabandi, Deepak Kapoor
Medical College of Georgia at Augusta University, Augusta, GA

BACKGROUND Bradycardia is a known complication of rotational atherectomy (RA). The manufacturer of the Rotablator system (Boston Scientific, MA) recommends placement of a temporary pacing wire in patients undergoing RA of lesions in the right coronary artery (RCA) and/or dominant left circumflex artery (LCx). No formal guideline recommendations exist in this setting and the utility of prophylactic temporary pacing wire placement remains controversial.

METHODS We retrospectively identified all patients undergoing RA with target lesions in the RCA and/or LCx over a two-year period. Chart review was performed and data regarding patient demographics, procedural characteristics, and temporary pacing wire utility were collected.

RESULTS Sixty patients met inclusion criteria for our study. Demographic data and procedural characteristics are reported in Table 1. TIMI 3 flow was achieved in 60 (100%) cases. A temporary pacing wire was placed in 9 (15%) cases. No occurrences of hemodynamically significant bradycardia were reported in the remaining 51 (85%) cases.

CONCLUSION While bradycardia is a known complication of RA to RCA and LCx, prophylactic placement of a temporary pacing wire is an operator-dependent decision. In our population, bradycardia requiring temporary pacing was not a common occurrence and the majority of cases did not require a temporary pacing wire. In addition to routine defibrillation pad placement, we recommend routine insertion of an appropriate central venous access sheath without placement of a prophylactic pacing wire in patients undergoing RA to RCA or LCx, should emergent pacing be required.

Population Demographics and Procedural Characteristics (N=60)	
Demographics	**Result ± SD (%)**
Age	67.65 ± 10.4
Gender (Male)	46 (76.6)
Diabetes Mellitus	32 (53.3)
HTN	53 (88.3)
HLD	47 (78.3)
Hx of Stroke	3 (5)
Hx of MI	20 (33.3)
Hx of PCI	23 (38.3)
Hx of CABG	21 (35.0)
Echocardiograms	**N = 47 (78.3)**
Ejection Fraction	50.1 ± 14.1
Less than 30%	6
30% to 50%	14
50% or greater	27
Procedural Characteristics	**Result ± SD (%)**
IVUS	59 (98.3)
Access	
Femoral	58 (96.7)
Radial	2 (3.3)
Location of Target lesion	N = 134 (% of patient population)
Prox RCA	30 (50.0)
Mid RCA	35 (58.3)
Distal RCA	24 (40.0)
PDA	1 (1.7)
Left Main	6 (10.0)
Prox LAD	5 (8.3)
Mid LAD	4 (6.7)
Prox LCx	19 (31.7)
Mid LCx	11 (18.3)
Number of vessels targeted per case	
1	51 (85.0)
2	9 (15.0)
Burr Size	
1.75	53 (88.3)
2.0	7 (11.7)
Stents per case	
0	5 (8.3)
1	15 (25.0)
2	15 (25.0)
3	18 (30.0)
4	6 (10.0)
5	1 (1.7)
Type of Stent used by case	N=55
DES	49 (89.1)
BMS	6 (10.9)
Sheath size (Fr)	
6	20 (33.3)
7	22 (36.7)
8	18 (30.0)
Final TIMI flow	
3	60 (100)
Procedural Support	
IABP	4 (6.7)
LVAD (Impella)	3 (5.0)
Outcomes	
Temporary pacing wire activated	9 (15.0)

CRT-100.32

Predictors of Procedural Complication During Rotational Atherectomy vs. Orbital Atherectomy in Calcified Coronary Artery Disease: A Contemporary Retrospective Comparative Analysis (ROCC study)

Kintur Sanghvi, Allen Mcgrew, Jeff Stahl
Deborah Heart & Lung Center, Browns Mills, NJ

BACKGROUND Severe coronary calcification adversely influences success of percutaneous coronary intervention. Rotational atherectomy (RA) (Boston Scientific) and orbital atherectomy (OA) (Diamondback 360® (CSI)) are used to modify plaque and help facilitate stent delivery to improve clinical outcomes. We sought to identify predictors of procedural complications (PC) while performing coronary atherectomy.

METHODS Between June 2010 and July 2015, all patients at a single center who had attempted treatment with RA or OA were retrospectively evaluated. Demographic, procedural, and clinical data were collected by chart review. Two interventional cardiologists independently reviewed each cineangiography to record lesion traits and angiographic outcomes. Predefined PC were noted including: dissection, perforation, reduced or no TIMI flow, or side branch loss. Univariate analyses were conducted to see which variables significantly related to any PC. After a Bonferroni correction, multivariate logistic regression analysis was performed to find a model that predicted PC.

RESULT A total of 62 procedures out of 274 had PC. In the OA group 32 patients and in the RA group 29 patients suffered such complication. Significant differences in PC were found based on univariate analyses presented in the Table. Significant predictors on multivariate analysis included TIMI Flow Post Wire ($p<0.003$) and having a clinical complication ($p<0.004$). While type of device was not a significant predictor ($p=0.121$), the odds of having a procedural complication were 42% lower for those who received the RA.

CONCLUSION Successful wiring of severely calcified coronary artery stenosis is the most important predictor of having uncomplicated successful coronary atherectomy procedures. The modality of atherectomy does not predict procedural complications.

Procedural data, procedural complications, clinical complications and 6 months outcome

	Orbital atherectomy (n=127)	Rotational atherectomy (n=147)	*p* value
Primary endpoint- procedural success*	114 (92.7)	131 (91.6)	0.746
Unsuccessful passing of atherectomy device	1 (0.8)	6 (4.1)	0.083
Successful stent delivery	117 (92.9)	133 (91.7)	0.728
Guide extender used	32 (25.4)	5 (3.4)	<0.001
Any complications post atherectomy**	28 (22.4)	18 (12.8)	0.038
Any complications post stent**	1 (0.9)	7 (5.1)	0.053
Any clinical complications***	23 (18.3)	19 (13.1)	0.159
Follow up data available	106 (84.1)	118 (81.4)	0.551
Angina free at 6 months follow up	81 (76.4)	94 (79.7)	0.335
MACE (TLR/TVR/MI/Death)	25 (23.6)	24 (20.3)	0.335

*Procedural success: successful atherectomy device passing & deployment of stent with <50% residual stenosis

**Any complications include a composite of: reduced TIMI flow, perforation and dissection

***Clinical complications include asystole, bradycardia, cardiac death, STEMI, TVR, TLR or CVA/TIA.

Predictors of Procedural complication on Univariate logistic regression analysis

	X^2 (df)	*p*
Clinical Presentation	11.74 (3)	0.008
Stenosis Diameter	13.95 (3)	0.003
Calcification Severity	6.63 (1)	0.010
Calcification on both sides	6.26 (1)	0.012
Lesion Length	4.58 (1)	0.032
Length of Calcification	4.94 (1)	0.026
Baseline TIMI Flow	12.92 (1)	0.000
TIMI Flow Post Wire	28.42 (1)	0.000
TIMI Flow Post PTCA	38.56 (1)	0.000
Access Site	4.90 (1)	0.027
Impella Device Used	7.68 (1)	0.006
Complications Post Wire	12.14 (1)	0.000
Complications Post PTCA	11.03 (1)	0.001
Any Clinical Complications	11.74 (1)	0.001