Cardiac catheterization procedures with or without intervention were identified by procedural codes 37.22, 37.23, and 88.5x. PCI was identified by codes 00.66, 36.01, 36.05, 36.07, and 36.09. CABG by code 44. Propensity score (PS) matching analysis was used to compare outcomes of patients underwent various treatments adjusted for their comorbidities.

RESULTS Total of 1,400 patients with paraplegia were identified from 402,569 adult AMI admissions (3.5 per 1,000 admissions) with average age of 67.8±14.6 with 41% female, 65% white and 16% black. In addition to paraplegia, these patients have significant comorbidities such as hypertension (52%), diabetes mellitus (30%), and hyperlipidemia (25%). The overall in-hospital mortality was high (22.4%, 95% CI 20.2-24.6). The majority underwent medical therapy without a cardiac catheterization (1172 out of 1400, 83.7%), with 101 (7.2%) who underwent a diagnostic cardiac catheterization without revascularization, 100 (7.1%) who received PCI, and 27 (1.9%) patients who underwent CABG. Comparison of 127 treated with revascularization versus without (635 PS matched patients) found that revascularization was associated with lower mortality (9.5 (CI 4.3-14.6) vs. 22.0 (18.8-25.3), p <0.01), shorter LOS (13.0 (9.9-16.0) vs. 16.9 (15.1-18.8), p = 0.08), but higher hospital charges ($130,000 ($110,000-$150,000) vs. $92,000 ($84,000-$101,000), p <0.001). Comparison between PCI (115) and PS-matched CABG (23) found that PCI was associated with significantly lower mortality (1.7 (0-4.1) vs. 21.7 (4.5-38.9), p<0.001), shorter LOS (14.2 (11.2-17.1) vs. 24.8 (17.7-32.0), p<0.001) and lower hospital charges ($144,000 ($122,000-$167,000) vs. $231,000 ($183,000-$280,000), p<0.01).

CONCLUSION AMI in patients with paraplegia is a small but unique subgroup of AMI patients that deserves attention. These patients had high in-hospital mortality, low rate of using invasive diagnostic and treatment approaches. Propensity score matching analysis revealed that revascularization was associated with favorable outcome. PCI was associated with significantly better outcome than CABG.

Population Demographics and Procedural Characteristics (N=28)	
Demographics	**Result ± SD (%)**
Age	80.36 ± 4.36
Gender (Male)	17 (60.7)
Diabetes Mellitus	14 (50.0)
HTN	28 (100)
HLD	21 (75.0)
Hx of Stroke	3 (10.7)
Hx of MI	10 (35.7)
Hx of PCI	9 (32.1)
Hx of CABG	3 (10.7)
Echocardiograms	**N = 27 (96.4)**
Ejection Fraction	45.04 ± 15.79
Less than 30%	6 (22.2)
30% to 50%	9 (33.3)
50% or greater	12 (44.4)
Procedural Characteristics	**Result ± SD (%)**
IVUS	28 (100)
Procedural Success	28 (100)
Access	
Femoral	26 (92.9)
Radial	2 (7.1)
Location of Target lesion	N= 55 (% of patient population)
Prox RCA	5 (17.9)
Mid RCA	5 (17.9)
Distal RCA	2 (7.1)
PDA	1 (3.6)
Left Main	5 (17.9)
Prox LAD	18 (64.3)
Mid LAD	14 (50.0)
Distal LAD	1 (3.6)
Prox LCx	2 (7.1)
Mid LCx	2 (7.1)
Number of vessels targeted per case	
1	24 (85.7)
2	4 (14.3)
Burr Size	
1.25	7 (25.0)
1.5	13 (46.4)
1.75	4 (14.3)
2.0	2 (7.1)
2.15	1 (3.6)
2.25	1 (3.6)
Stents per case	
0	3 (10.7)
1	10 (35.7)
2	8 (28.6)
3	5 (17.9)
4	2 (7.1)
Type of Stent used by case	N=25 (% of patient population)
DES	22 (78.6)
BMS	3 (10.7)
Sheath Size (Fr)	
6	7 (25.0)
6.5	1 (3.6)
7	11 (39.3)
8	9 (32.1)
TIMI 3 flow	28 (100)
Procedural Support	
IABP	3 (10.7)
Temporary pacer	4 (14.3)
LVAD (impella)	2 (7.1)

Clinical Outcomes at 6 months (N=28)	
MACE (Cumulative Totals)	**Result ± SD (%)**
1 month	0 (0)
2 month	1 (3.6)
3 month	3 (10.7)
4 month	4 (14.3)
5 month	4 (14.3)
6 month	5 (17.9)
Lost to follow up at 6months	4 (14.3)
MACE (Clinical Events)	
Death	2 (7.1)
Sustained Ventricular Arrythmia	1 (3.6)
Myocardial Infarction	
STEMI	0 (0)
NSTEMI	2 (7.1)
Type 2 MI*	2 (7.1)
Target Vessel Revascularization	4 (14.3)
Stroke	0 (0)
Angiographic Complications	
Coronary Dissection/Tamponade	1 (3.6)
Hemorrhage, arterial access (impella)	1 (3.6)
Repeat Catheterization	6 (21.4)
Repeat Intervention Performed	3 (10.7)
Mean Time To Repeat Catheterization (days)	80.8 ± 52.7
Median Time To Repeat Catheterization (days)	60

*Type 2 MI is defined as: myocardial infarction secondary to ischemia due to either increased oxygen demand or decreased supply, e.g. coronary artery spasm, anemia, arrhythmia, hyperteension, or hypotension.

ATHERECTOMY DEVICES

CRT-100.28

Safety and Feasibility of Rotational Atherectomy in Elderly Patients with Severely Calcified Coronary Lesions: Clinical Outcomes at Six Months

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BACKGROUND In elderly patients, percutaneous coronary intervention (PCI) is associated with worse short-term outcomes and increased rates of angiographic complications. Furthermore, severe coronary artery calcification (CAC) decreases the probability of optimal PCI. Many patients with severe CAC benefit from lesion modification with rotational atherectomy (RA), however the safety and feasibility of RA in the elderly is not well-established.

METHODS We retrospectively identified all patients; age greater than 75, undergoing RA over a three-year period. Data regarding patient demographics, procedural characteristics, and incidence of major adverse cardiac events (MACE) was collected.

RESULTS Twenty-eight patients were included in data analysis. Demographic data, procedural characteristics, and clinical outcomes are reported in Table 1. Procedural success was achieved in all cases and no MACE occurred within 30 days of PCI. At 6 months, 17.9% (5/24) of patients had experienced MACE. The incidence of MACE was driven by NSTEMI, Type II MI, and target vessel revascularization. Two deaths were reported. One patient developed ventricular tachycardia while undergoing sigmoidectomy and the other was enrolled in hospice care for metastatic malignancy.

CONCLUSION RA is an indispensable tool in the elderly population, as they are more likely to have CAC and other comorbidities that limit their candidacy for surgical revascularization. In our population, RA was successful in all cases and procedural complications were rare. RA is a safe and feasible technique that should be considered in elderly patients with severe CAC.

CRT-100.29

Clinical Outcomes of Atherectomy Prior to Percutaneous Coronary Intervention in Patients on Dialysis (COAP-HD Study)

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BACKGROUND Lesion preparation is often essential in patients with coronary artery calcification (CAC) undergoing percutaneous coronary intervention (PCI). Patients with end-stage renal disease on hemodialysis have increased severity of CAC, increasing the complexity of PCI. There here have been no studies that have compared the head-to-head outcomes of dialysis patients undergoing orbital atherectomy (OA) compared to rotational atherectomy (RA).

METHODS This prospective, observational, multicenter study assessed OA vs. RA in dialysis patients with CAC. Thirty-five thousand five hundred ninety patients from 5 tertiary-care hospitals who had PCI between January 2011 and April 2016 were identified. Matched analysis of all dialysis patients who had OA or RA prior to PCI was performed (n=62).

RESULTS There were 31 patients in each cohort. There was no significant difference in the primary endpoint, death on discharge (0% vs. 3.2%, p=0.31). Multivariate adjusted analysis demonstrated no statistically significant differences in procedural and in-hospital outcomes (Table 1).

CONCLUSION Atherectomy in patients on dialysis, a complex, high-risk subset of patients, with CAC has not been well-studied. In this first head-to-head analysis of dialysis patients with CAC undergoing atherectomy prior to PCI, there were no significant differences between either modality, with low rates of procedural complications in both groups. Multicenter randomized studies are needed to confirm the optimal atherectomy strategy in this rarely studied patient population.

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)

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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

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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.