CONCLUSION Adequate modification of severely calcified plaque is an important step to achieve successful stent delivery in a historically difficult-to-treat lesion subset. The COAST trial was designed to assess the Coronary OAS Micro Crown in treating severely calcified lesions to facilitate stent deployment.

Table. COAST Clinical Outcomes—30-day and 1-year MACE

	30-day	1-year
MACE (%)	15.0	22.2
Cardiac death (%)	1.0	1.0
Myocardial infarction (%)	14.0	14.0
Target vessel revascularization (%)	1.0	9.4

Caution - Investigational Device. Limited by Federal (or United States) law to investigational use.

LBT-4

Clinical Outcome of Atherectomy Prior to Percutaneous Coronary Intervention (COAP-PCI)

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PURPOSE Coronary artery calcification presents many challenges to successful interventions. As a result, lesion preparation has become increasingly important prior to percutaneous coronary intervention (PCI). Atherectomy is an important tool for optimal lesion preparation. There here have been no studies that have compared the outcomes of orbital atherectomy and rotational atherectomy. We sought to examine the safety and efficacy of patients with calcified coronary artery disease who underwent atherectomy prior to PCI.

METHODS This observational, multicenter analysis compared orbital atherectomy and rotational atherectomy in patients with coronary artery calcification who had atherectomy prior to PCI. 35,590 patients from 5 tertiary care hospitals who had PCI between January 2011 to April 2016 were identified. All patients who had orbital or rotational atherectomy prior to PCI were included in our analysis. A total of 708 patients were included.

RESULTS 292 patients were in the orbital atherectomy arm and 416 patients were included in the rotational atherectomy group (Table 1). Procedural data is presented in Table 2. The primary endpoint, death on discharge occurred in none of the 292 patients in the orbital atherectomy group compared with 6 of the 416 patients in the rotational atherectomy group (0% vs. 1.4%, p=0.018). The rate of secondary outcomes for myocardial infarction and stroke were similar between groups. There was no significant differences in procedural safety endpoints including dissection, perforation, tamponade, need for new dialysis or major bleeding complications. Endpoint data and adverse events are presented in Table 3. Fluoroscopy time was significantly decreased with orbital atherectomy compared with rotational atherectomy (22.07 vs. 27.67 mins., p= 0.00).

CONCLUSIONS In patients with coronary artery calcification who undergo atherectomy prior to PCI, orbital atherectomy was associated with significantly decreased in-hospital mortality, and procedural radiation time compared with rotational atherectomy.

Table 1. Baseline Characteristics-Unadjusted Analysis Variable Name

	Orbital atherectomy (N=292)	Rotational atherectomy (N=416)	p value
Age (Years)	71.50±11.00	73.36 ±9.95	**0.019**
BMI (kg/m2)	28.18±6.00	28.18±6.00	0.989
Smoker (n)	60 (20.5%)	41 (9.9%)	**0.000**
Hypertension (n)	279 (95.5%)	399 (95.9%)	0.858
Dyslipidemia (n)	268 (91.8%)	380 (91.3%)	0.801
Premature CAD (n)	8 (2.7%)	23 (5.4%)	0.075
Prior MI (n)	111 (38%)	150 (36.1%)	0.589
Prior Heart Failure (n)	71 (24.3%)	103 (24.8%)	0.899
Prior Valve Surgery (n)	6 (2.1%)	18 (4.3%)	0.101
Prior PCI (n)	135 (46.2%)	195 (46.9%)	0.876
Prior CABG (n)	45 (15.4%)	102 (24.5%)	**0.003**
Dialysis (n)	22 (7.5%)	30 (7.2%)	0.876
Cerebrovascular Disease (n)	52 (17.8%)	79 (19%)	0.695
Peripheral Vascular Disease (n)	51 (17.5%)	83 (20%)	0.410
Chronic Lung Disease (n)	25 (8.6%)	55 (13.2%)	0.055
Diabetes Mellitus (n)	157 (53.8%)	218 (52.4%)	0.710
Cardiomyopathy (n)	50 (17.1%)	75 (18%)	0.761

Table 2. Procedural Information

	Orbital atherectomy (N=292)	Rotational atherectomy (N=416)	p value
Pre PCI LVEF (%)	51.09±13.19	51.02±13.03	0.947
Femoral Artery Access (n)	174 (59.6%)	288 (69.2%)	**0.008**
IABP during the procedure (n)	9 (3.1%)	25 (6%)	0.079
Percutaneous LVAD Support (n)	12 (4.1%)	18 (4.2%)	0.924
Bivalirudin use (n)	175 (60%)	215 (51.7%)	**0.028**
Fluoroscopy Time (mins.)	22.07±12.00	27.67±15.36	**0.000**
Contrast Volume (ml)	158.22±67.88	163.01±79.12	0.408

Table 3. Adverse Events Orbital atherectomy (N=292)

	Rotational atherectomy (N=416)		p value
Death on Discharge (n)	0 (0%)	6 (1.4%)	**0.039**
Myocardial Infarction (n)	43 (14.7%)	59 (14.2%)	0.791
Stroke (n)	0 (0%)	1 (0.2%)	0.382
Significant Dissection (n)	4 (1.4%)	4 (1%)	0.599
Perforation (n)	0 (0%)	3 (0.7%)	0.149
Tamponade (n)	0 (0%)	4 (1%)	0.079
Heart failure (n)	4 (1.4%)	17 (4.1%)	**0.022**
Initiation of new dialysis (n)	0 (0%)	1 (0.2%)	0.382
RBC transfusion (n)	12 (4.1%)	28 (6.7%)	0.079

Table 4. Adjusted Analysis- Multivariate Analysis Variable Name

	p value
Death on Discharge	**0.018**
RBC transfusion	**0.006**

LBT-5

New Drug-eluting Stents In Patients With Diabetes Mellitus And Multi-Vessel Disease (3d Registry)

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PURPOSE There is an on-going debate about the best drug-eluting stent (DES) for patients with Diabetes Mellitus (DM). To date, there are no comparisons between everolimus-eluting stents (EES) and resolute zotarolimus-eluting stents (R-ZES) in patients with DM and MVD. The objective was to compare the safety and efficacy of EES vs R-ZES in patients with DM and MVD in the real-world practice.

METHODS Nationwide registry of consecutive patients with DM and MVD. The primary endpoint was target lesion failure (the combined of cardiac death, target vessel myocardial infarction, stent thrombosis or target lesion revascularization). Cox models (Fine and Gray) as well as propensity score matching were performed to adjust for significant covariates.

RESULTS 1981 lesions were included (1,302 EES, 679 R-ZES). Adjusted analysis showed no differences between stents in TLR (HR 0.629, 95% CI 0.359 to 1.10, p = 0.10) or TLF (HR 0.940 95%CI 0.88 to 1.01, p = 0.084). Propensity score matching confirmed no differences between stents (p=0.31).

CONCLUSIONS In this nationwide registry, both EES and R-ZES provided comparable results. A large randomized clinical trial is warranted to find out the optimal DES in this high risk population.