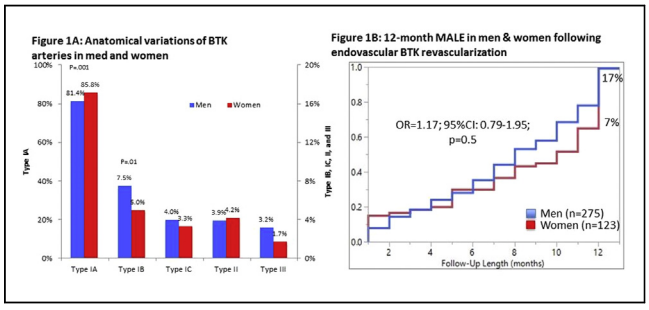

CRT-300.18

Outcomes of Stenting With Covered Stents in Aorto-iliac Lesions to Limit Restenosis

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BACKGROUND Advances in endovascular techniques and devices have improved the outcomes of percutaneous revascularization in what was once considered a primarily surgical disease.

The utilization of drug-covered stents (ICAST) appears to yield improved patency rate than the 85% patency rate demonstrated with the use of bare metal stents (BMS) across TASC A, B, C, and D lesions.

METHODS This is a single center prospective trial consisting of patients who underwent aorto-iliac interventions for de novo lesions or ISR (in-stent restenosis) using BMS or ICAST. The patients received routine clinic visits to assess for claudication and an annual vascular ultrasound of the iliac arteries to evaluate for restenosis. The study consisted of 28 limbs with BMS and 26 limbs with ICAST. The study subjects were followed over 3 years. We compared the number of re-intervention, time to re-intervention and number of crossover to ICAST to determine patency rates.

RESULTS Out of the 28 limbs with BMS, there were 8 ISR compared to only 2 IRS of the 26 limbs in the ICAST arm. There were 6 limbs in the BMS arm that crossed over to the ICAST arm after a period of 1 month to 12 years with a mean duration of five years. There was 1 case in the BMS arm that underwent percutaneous transluminal angioplasty without stenting, 7 years from original stent deployment. There was another case in the BMS arm with ISR after 6 months who did not undergo any intervention. On the other hand, there was one case of thrombosis in the ICAST arm after 2 months of stent deployment that required re-do with a BMS. There has been one re-do case of ICAST using another ICAST after 2.5 years.

CONCLUSION This study showed a trend toward improved patency rate with ICAST. There were four times more ISR with BMS when compared to ICAST. Although our result demonstrates improved patency with ICAST, a large randomized study is needed to validate our findings.

CRT-300.19

Angiography in Renal Impaired Patients, An Alternative Technique Utilizing CO_2 and Contrast Mini Doses

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BACKGROUND Prevalence of peripheral arterial occlusive disease, among patients with renal failure, is higher than the general population. Angiography is part of those patients workup. Contrast induced nephropathy (CIN) is a major concern in peripheral angiography. Prevention of CIN is of importance among these patients.

Albeit ample evidence support the use of carbon dioxide (CO_2) as alternative to contrast medium, Actual utilization rates of this technique are low.

We describe a series of cases in which a combination of CO_2 with minimal amount of diluted contrast medium were used for lower extremity angiography.

METHODS Eligible PAOD patients with renal failure, (creatinine >2.5 mg/dl or estimated GFR (eGFR) below 30 ml/min/1.73m^2) were treated by combination of CO_2 and diluted contrast medium. Pre angiography treatment consisted of hydration with 1500 ml of 0.9% saline and 1200mg of N-Acetyl Cysteine. Antegrade puncture, of the ipsilateral femoral artery, was used in all cases. CO_2 was used for the femoro-popliteal segment. The infrageniculate arteries were selectively imaged using diluted contrast medium (2 ml of Iomeron 300mOsml diluted with 6 ml of 0.9 % saline) via a catheter placed in the BK popliteal location (Cook KMP 65cm catheter). Pre and post procedure, Doppler examination, were evaluated.

RESULTS Four patients (50-67 years old), underwent peripheral angiography. Three patients underwent diagnostic and interventional procedures. All 3 patients, underwent infrageniculate percutaneous transluminal angioplasty (PTA), 2 of them underwent femoropopliteal segment PTA, as well. Stent was used in one patient, above and below knee segments, and in one just for the femoropopliteal segment. A median amount of 19ml contrast medium (Iomeron 300mOsml) was used.

ABI increase >25% post treatment was documented in all patients. One patient underwent a diagnostic procedure due to long SFA occlusion. A total amount of 12 ml Iomeron 300mOsml was administered. No adverse effects were noted during and following the procedure.

CONCLUSION PAOD patients with chronic renal failure can be effectively treated by endovascular approach combining CO_2 and minimal amounts of contrast medium. This simple and feasible technique may be used to preserve renal function in patients with advanced CKD undergoing peripheral endovascular procedures.

CRT-300.20

Predictors of Endovascular Revascularization for Critical Limb Ischemia

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BACKGROUND Endovascular treatment is being increasingly performed for patients with critical limb ischemia (CLI). We sought to determine the predictors of endovascular (Endo) versus surgical (Bypass) revascularization in patients with CLI.

METHODS This is a retrospective analysis of 174 CLI patients who were evaluated by a multidisciplinary team from 2011 to 2015 at a large, urban academic medical center and underwent lower extremity revascularization. One hundred thirteen patients (65%) underwent Endo and 61 patients (35%) underwent Bypass. Data collected included demographics, risk factors, Rutherford class and procedural and surgical details.

RESULTS Mean ± SD age of the Endo and Bypass Groups was 65±11 and 59±11 years, respectively, (p=0.004). Diabetes mellitus (DM) was more prevalent in the Endo compared to the Bypass group, 78% vs 54%, p=0.001. Smoking was more prevalent in the Bypass compared to the Endo group, 39% vs 20%, p=0.007. Prior bypass was more common in the Bypass group. Below the knee (BTK) disease was more common in the Endo compared to the Bypass group, 47% vs 10%, p<0.0001.

Univariate predictors to undergo Endo included age >65 years (OR 2.5, 95% CI: 1.2-5.2, p=0.01), DM (OR 2.9, 95% CI: 1.5-5.7, p=0.002), advanced Rutherford classes 5/6 (OR 2.5, 95% CI: 1.2-4.8, p=0.007) and BTK disease (OR 8.2, 95% CI: 3.2-20.6, p<0.0001). On multivariate analysis, age >65 years (OR 2, 95% CI: 1-4.3, p=0.05) and BTK disease (OR 2.8, 95% CI: 1.2-6.3, p=0.02) were significant predictors of Endo; prior surgical bypass was less associated with Endo (OR 0.3, 95% CI: 0.1-0.8, p=0.02).

CONCLUSION In this contemporary series of CLI patients undergoing revascularization, older age, diabetes mellitus, advanced Rutherford Class and below the knee disease were more prevalent in patients receiving endovascular therapy. Independent predictors of endovascular revascularization were age >65 years and below the knee disease.

CRT-300.21

Carotid Artery Stenting is Safe and Effective in High Risk Patients

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BACKGROUND Carotid artery stenting (CAS), compared with carotid endarterectomy, has been a controversial therapy for carotid artery stenosis. CAS may be the treatment of choice for certain high-risk patient subsets. The aim of the study is to demonstrate the safety and effectiveness of CAS in high risk patients compared to non-high risk patients.

METHODS We retrospectively analyzed 62 patients who had CAS (70-99%) with self-expanding nitinol stent (Xact®) placement. High-risk patients were defined by recent myocardial infarction, congestive heart failure Class III/IV, EF less than 40%, severe peripheral vascular disease, diabetes, lung disease and severe renal disease. The primary end point was stroke, myocardial infarction, contrast reaction, bleeding and death during the peri-procedure period and after the discharge.

RESULTS 62 consecutively treated patients were evaluated. There was 1 (1.61%) death noted within 1 year of procedure in non-high risk group that was not statistically significant. There were no neurologic events or renal failure requiring dialysis noted after the discharge. Even when correcting with a multi-variate analysis, there was no difference in outcomes between the two groups at 30 days and one year post procedure (Table 1).

CONCLUSION In high risk patients as well as non high risk patients, CAS is safe and effective as an alternative to surgery. More analysis and prospective studies are needed to confirm these real-world patient findings. CAS and surgery should be discussed as treatment options in a similar fashion to transcatheter aortic valve replacement for aortic stenosis, utilizing the heart team approach with vascular surgery and interventional cardiology.

Table 1a. Unadjusted Analysis

Variable	High Risk group(n =20)	NON high risk group(n=42)	P value (Unadjusted)
Age (years)	66.96±8.57	69.73±8.64	0.242
BMI (kg/m^2)	28.74±7.08	27.30±4.10	0.318
EF (%)	47.55±13.64	59.28±7.72	0.825
Current Smoker (n)	7 (35%)	6 (14.28%)	0.063
Former Smoker (n)	6 (30%)	21 (50%)	0.142
Hypertension (n)	17 (85%)	40 (95.23%)	0.172
Dyslipidemia (n)	16 (80%)	40 (95.23%)	0.059
Diabetes Mellitus (n)	15 (75%)	20 (47.61%)	0.043
Chronic Lung Disease (n)	3 (15%)	2 (4.76%)	0.172
Previous Neck Radiation (n)	0 (0.00%)	3 (7.14%)	0.227
Previous Neck Surgery Other Than CEA (n)	0 (0.00%)	7 (16.66%)	0.054
Tracheostomy Present (n)	1 (5%)	1 (2.38%)	0.593
Ischemic Heart Disease (n)	9 (45%)	0 (0.00%)	0.000
History of AF or Flutter (n)	4 (20%	2 (4.76%)	0.059
>1 Coronary arteries with stenosis >70% (n)	1 (5%)	0 (0.00%)	0.149
Angina NYHA class III OR IV (n)	0 (0.00%)	2 (4.76%)	0.329
Mechanical Aortic Mitral Valve (n)	2 (10%)	2 (4.76%)	0.441
Permanent Pacemaker (n)	2 (10%)	3 (7.14%)	0.705
Contrast Volume (ml)	108.60±45.63	100.92±30.92	0.439
Fluoro Time (min)	13.26±5.11	18.30±16.72	0.196
Vessel Diameter (mm)	7.2±10.5	7.2±1.01	0.759
Lesion Length (mm)	32.90±4.56	31.23±3.94	0.042
Neurological Deficit after discharge (n)	0 (0.00%)	0 (0.00%)	NA
MI After Discharge (n)	1 (5%)	0 (0.00%)	0.149
Renal Failure Requiring Dialysis After Discharge (n)	0 (0.00%)	0 (0.00%)	NA
Death Within 30 Days (n)	0 (0.00%)	0 (0.00%)	NA
Death Within One Year (n)	0 (0.00%)	1 (2.38%)	0.667

Table 1b. Adjusted Multivariate Analysis

Variables	P value
Neurological Deficit after discharge	NA
MI After Discharge	0.149
Renal Failure Requiring Dialysis After Discharge	NA
Death Within 30 Days	NA
Death Within One Year	0.667

CRT-300.22

Men and Women Have Equivalent Outcomes After Carotid Artery Stenting

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BACKGROUND Carotid artery stenosis causes up to 10% of all ischemic strokes. Carotid endarterectomy (CEA) was introduced as a treatment to prevent stroke in the early 1950s. Carotid stenting (CAS) was introduced as a treatment to prevent stroke in 1994. We have detailed in-depth report of CAS patients. The aim of the study is to demonstrate equivalency of safety in CAS between men and women.

METHODS We retrospectively analyzed 62 patients who had CAS (70-99%) with self-expanding nitinol stent (Xact®) placement. Groups were defined by gender and all demographics and outcomes were measured. The primary end point was stroke, myocardial infarction, contrast reaction, bleeding and death during the peri-procedure period and after the discharge.

RESULTS 62 consecutively treated patients were evaluated. There was 1 (1.61%) death noted within 1 year of procedure in the male group. There were no neurologic events or renal failure requiring dialysis noted after the discharge.

CONCLUSION In both men and women, CAS is safe and effective as an alternative to surgery. Most studies underrepresent women, however it is clear than women have equivalent outcomes to me in CAS. More analysis and prospective studies are needed to confirm these real-world patient findings. CAS and surgery should be discussed as treatment options in a similar fashion to transcatheter aortic valve replacement for aortic stenosis, utilizing the heart team approach with vascular surgery and interventional cardiology.

Variable	Male (n=36)	Female (n=26)	P value (unadjusted)
Age(years)	66.07±8.06	72.66±8.07	0.002
BMI (kg/m2)	27.52±4.50	28.11±6.17	0.662
Tobacco history(Current smoker) (n)	9 (25%)	4 (15.38%)	0.367
Hypertension (n)	32 (88.88%)	25 (96.15%)	0.308
Dyslipidemia (n)	33 (91.66%)	23 (88.46%)	0.680
Peripheral Arterial disease (n)	11 (30.55%)	16 (61.53%)	0.015
Diabetes (n)	18 (50%)	17 (65.38%)	0.235
Chronic Lung disease (n)	2 (5.55%)	3 (11.53%)	0.402
Ischemic Heart Disease (n)	5 (13.88%)	4 (15.38%)	0.872
Atrial Fibrillation/ atrial Flutter (n)	3 (8.33%)	3 (11.53%)	0.680
History of heart failure (n)	1 (2.77%)	4 (15.38%)	0.074
Mechanical Aortic/ Mitral valves (n)	3 (8.33%)	1 (3.84%)	0.486
Permanent pacemaker/ ICD (n)	2 (5.55%)	3 (11.53%)	0.402
Most recent EF (%)	53.69±10.88	58.00±11.69	0.142
Diameter (mm)	7.38±0.83	7.03±1.21	0.184
Length (mm)	31.88±3.91	31.61±4.63	0.802
New stroke or TIA (n)	0 (0.00%)	0 (0.00%)	NA
New seizure (n)	0 (0.00%)	0 (0.00%)	NA
Neurological deficits occurred since discharge (n)	0 (0.00%)	0 (0.00%)	NA
Myocardial infarction since discharge (n)	0 (0.00%)	1 (3.84%)	0.242
Renal failure requiring dialysis (n)	0 (0.00%)	0 (0.00%)	NA
Death within 1 year (n)	1 (2.77%)	0 (0.00%)	0.400