Use of SpiderFX™ Embolic Protection Device vs. Distal Embolic Event: Hospital Length of Stay, Operating Room Time, Costs and Mortality

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Background: Distal embolization (DE) is a potential complication of percutaneous atherectomy and other endovascular procedures that can lead to poor outcomes for the patient and escalated costs for hospitals. Embolic protection (EP) devices have been shown in several studies to have a low failure rate, and thus reduce the incidence of these events. This study compared inpatient hospital costs and resource utilization in two non-coronary (presumed lower extremity) atherectomy patient populations: (1) a DE event group, and (2) a SpiderFX™ Embolic Protection Device (Covidien, Plymouth, MN) group.

Methods: All inpatient discharges for atherectomy of non-coronary vessels (ICD-9-CM procedure code 39.50) were selected from a comprehensive hospital admissions database (Premier Perspective CY2006-Q3 of CY2012). Of these, DE patients were identified using ICD-9-CM diagnosis codes (444.xx, 434.0, and 434.1). Patients using a SpiderFX™ Device were identified using a product keyword search. Discharges in both the groups were matched 1:1 using propensity score methodology, adjusting for age, gender, race, region and severity. Hospital length of stay, operating room (OR) time, costs and inpatient mortality were compared between the groups.

Results: A total of 624 matched pairs were identified for the final analysis. Hospital stay averaged 1.4 days longer in the DE patients (p<0.0001) compared to the SpiderFX™ Device patients. OR time was 38 minutes longer for DE patients (p=0.02). Total costs were higher but not statistically significant for the DE group ($21,709 vs $19,948, p=0.10). Room and board, pharmacy, laboratory and diagnostic costs were all significantly higher for DE than for the SpiderFX™ Device (p<0.05). The inpatient mortality rate was higher in the DE group but not statistically significant (1.8% vs. 0.80%, p=0.13).

Conclusions: The use of the SpiderFX™ Device is strongly associated with shorter hospital stays and shorter OR times. Cumulatively, these findings demonstrate embolic protection devices such as the SpiderFX™ Device may significantly reduce consumption of hospital resources.

Impact of below the knee lesions to outcome in patients implanted stent for superficial femoral arterial chronic total occlusion lesion.

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Background: The purpose of this study was to identify the relationship between below the knee (BTK) lesions and outcomes after endovascular treatment (EVT) of chronic total occlusion (CTO) lesion in the superficial femoral artery (SFA). Methods: From June 2001 to November 2001, 209 atherosclerosis obliterans patients underwent endovascular therapy for only SFA CTO lesions with self-expanding stents. After the EVT, final angiography was performed to evaluate the blow the knee lesions and number of vessels (0-3) in BTK with CTO lesions were counted. Within them, 120 limbs in 120 patients were performed 9 months follow up angiography.

Results: In total, 31 patients (25.8%) were showed in-stent occlusion and 63 patients (52.5%) were revealed in-stent restenosis including stent occlusion. The patients with stent occlusion were more frequently observed BTK lesions at stent implantation compared to the patients without stent occlusion (83.9% vs 58.4%; p=0.02). Similarly, the patients with in-stent restenosis were also more frequently observed BTK lesions (76.2% vs 45.6%; p<0.001). The re-occlusion rate was significantly higher in the patients with 1 or 3 BTK lesions than patients without BTK lesion. In addition, the restenosis rate was also higher in the patients with 1 or 2 BTK lesions than patients without BTK lesions.

Conclusions: Re-occlusion and restenosis rate of the patients treated SFA CTO lesions may be associated to the distal run-off vessel disease.