

Re-stenosis following Carotid Artery Stents: Endovascular Treatment Options

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Purpose: Re-stenosis is a well-recognized complication following carotid artery stent (CAS) placement particularly after treating recurrent stenosis after carotid artery endarterectomy (CEA). We herein reviewed our experiences and treatment strategies.

Method: Hospital records were reviewed on all patients who underwent CAS from August, 2002 to October, 2004 in the affiliated hospitals of the Baylor College of Medicine. Patients with sonographic or angiographic confirmation of in-stent stenosis were further analyzed and those who required further endovascular interventions were included in the study.

Results: Over a two-year study period, 147 carotid stents were deployed in 135 high-risk patients including 22 patients presented with recurrent stenosis with a mean time interval of 70 months (range, 2-240 months) from the initial CEA procedures. Twenty-three stents (16%) had sonographic evidence of over 50% luminal reduction during routine follow-up evaluations. There were five patients (3.4%) with a mean age of 68 years (range, 65 to 87 years) developed high-grade stenosis (>80%) that required interventions including three patients whose initial stents were placed for recurrent stenosis following CEAs (13.6%). The presenting symptoms were transient ischemic attack (n=1) and non-specific dizziness (n=2). Two patients were asymptomatic. The average time interval of re-intervention was 6 months ranging from 2 months to 12 months. One (20%) patient was successfully treated with balloon angioplasty alone, three patients (60%) were treated with cutting balloons followed by additional stent placements, and one patient (20%) was treated with additional stent placement alone. Technical successes were achieved in all patients without any evidence of recurrent symptoms during a mean follow-up of 12 months (range, 3 - 24 months).

Conclusion: Our study demonstrated that hemodynamically significant re-stenosis (>80%) following CAS is uncommon (3.4%). However, rate of recurrent stenosis after treating post-CEA stenosis is strikingly high (13.6%) largely related to luminal diameter mismatch and stent deformity. While endovascular intervention as an effective strategy in treating in-stent re-stenosis with excellent mid-term outcomes, routine duplex evaluations are necessary to identify the patients with disease progression that require interventions.