

cation after carotid angioplasty and stenting (CAS) for internal carotid artery (ICA) stenosis than younger patients or those with asymptomatic ICA stenosis or retinal TIA.

**Summary:** It appears combined stroke and death rates after CAS are higher in symptomatic than asymptomatic patients (Stroke 2003; 34:813-819). The authors sought to identify *specific* clinical risk factors that may influence post procedural complications after CAS. This was a retrospective review of a prospectively maintained database involving 299 patients (217 men, 82 women, mean age  $69 \pm 9$  years), who underwent CAS for either asymptomatic ( $n = 129$ , 43%) or symptomatic ( $n = 170$ , 57%) ICA stenosis. Logistic regression analysis was used to determine risk factors associated with peri-procedure (30-day) complications (any TIA, minor stroke, major stroke or death).

Overall, the 30-day TIA rate was 3.7%. The minor stroke rate was 5.3%, and the major stroke rate 0.7%, with a death rate of 0.7%. Patients presenting with a minor stroke or hemispheric TIA had a higher risk of complication than asymptomatic patients (odds ratio [OR] 5.69; 95% confidence interval [CI], 2.03-19.57;  $P < .001$ ). Complication rate in patients presenting with a retinal TIA and in asymptomatic patients were similar (OR, 1.42; 95% CI, 0.13-9.02;  $p = 0.6$ ). Advanced age (OR 1.06; 95% CI 1-1.11;  $P < .05$ ), stroke (OR, 8.0; 95% CI, 2.26-24.1;  $P < .01$ ), or hemispheric TIA (OR 4.7; 95% CI, 1.16-13.3;  $P = .004$ ), were all independent predictors of combined 30-day occurrence of any TIA, stroke, or death.

**Comment:** Identification of potential risk factors for CAS is crucial to proper patient selection for CAS and for patient counseling. This study helps identify presenting clinical features that may be important in selecting the patients for CAS. Unfortunately, angiographic features of the carotid stenoses were not reported. It is likely that a combination of angiographic and clinical features will ultimately prove most useful in the selection of patients for CAS.

#### Post carotid endarterectomy hyperperfusion or reperfusion syndrome? Karapanayiotides T, Meuli R, Devuyst G, et al. Stroke 2005; 36:21-26

**Conclusion:** So called hyperperfusion syndrome after carotid endarterectomy may, in some cases, be more correctly described as resulting from *reperfusion* rather than *hyperperfusion*.

**Summary:** Hyperperfusion syndrome (HS) following carotid revascularization is thought to occur in a previously chronically hypoperfused cerebral hemisphere with impaired cerebrovascular autoregulation. The authors of this study sought to study hemispheric perfusion in patients following carotid endarterectomy who had symptoms consistent with so-called HS. Patients were selected from 388 consecutive patients who underwent carotid endarterectomy. Five of these patients presented 2-7 days after carotid endarterectomy with partial seizures and focal neurologic deficits. Three had a cerebral hemorrhage. These patients were considered to have HS. All had undergone carotid endarterectomy for very high-grade carotid stenosis. Patients were assessed for relative inter-hemispheric differences of cerebral blood flow by perfusion weighted MRI imaging and with diffusion weighted (DWI) MRI imaging. In addition, middle cerebral blood flow velocity measurements were obtained with transcranial Doppler.

There were no hyper-intensity pathologic DWI abnormalities in any of the five patients. This is consistent with an absence of acute ischemic or cytotoxic hemispheric edema. Perfusion weighted imaging documented a 20-44% relative inter-hemispheric difference in cerebral blood flow in favor of the hemisphere ipsilateral to the recent carotid endarterectomy. Transcranial Doppler middle cerebral artery flow velocities were not abnormally increased in any patient.

**Comment:** The classic definition of HS following carotid endarterectomy is a 100% increase in cerebral blood flow compared to preoperative values (J Neurosurg 2003; 99:504-510). The current study suggests symptoms and pathology consistent with what is regarded as HS following carotid endarterectomy can occur in the presence of relatively mild increased cerebral perfusion. The hemodynamic abnormalities leading to the clinical manifestations of HS may be milder and more complicated than previously appreciated.

#### Risk factors for venous thrombosis in swedish children and adolescents Risk O, Berntorp E, Ljung R. ACTA Paediatrica 2005;94:717-22

**Conclusion:** There are prothrombotic risk factors present in almost all children and adolescents with venous thrombosis.

**Summary:** Venous thrombosis has an incidence of approximately 10/10,000 in adults and 0.07/10,000 children. (Haematologica 1999;84: 59-70 and Journal Pediatr Hematol Oncol 1997;19:7-22). Little information, however, exists regarding prothrombotic risk factors in children with venous thromboembolism (VTE). The authors attempted to identify prothrombotic risk factors in adolescents and children following their first VTE event. There were 128 consecutive adolescents and children (newborn to 20 years) who were evaluated following referral to a regional coagulation center in southern Sweden. The prothrombotic risk factors evaluated included protein C, protein S, antithrombin; resistant to activated protein C; genotypes FV - G1691A, II-G20210A, MTHFR-C677T, MTHFR-A1298C, and coagulation factors VIII and XI. There was also a retrospective collection of clinical data.

Identifiable genetic factors related to VTE were present in 53 of 83 (64%) subjects who had follow up blood sampling. Of these 17/83 (20%) had two or more inherited risk factors. There was a combination of acquired risk factors and genetic risk factors in 45/83 subjects (54%). At least 1 risk factor was present in 77/83 subjects (93%). There was a peak frequency of VTE in children less than 1 year of age with a second peak occurring during adolescents. Levels of coagulation factors VIII and XI were age appropriate and showed a normal Gaussian distribution.

**Comment:** While venous thromboembolism is unusual in children and adolescents, the data here suggest that a VTE event in a child should be investigated with a detailed hypercoagulable panel. The yield is high enough to merit routine use in children with VTE.

#### Changes in false lumen after transluminal stent-graft placement in aortic dissections six years experience Kusagawa H, Shimono T, Ishieda M et al. Circulation 2005;111:2951-7

**Conclusion:** Treatment of aortic dissection with stent graft placement results in obliteration of the false lumen more often in the acute setting than in chronic dissections.

**Summary:** The authors chose to review their aortic stent graft patients where stent grafts were placed for treatment of aortic dissection. The goal was to quantify long term results in changes in the false lumen over time. There were 49 patients who had primary tears in the descending aorta who were treated with aortic stent graft placement. Follow up ranged from 4 months to 6 years. In thirty-two cases the patients were treated in the acute setting and there were 17 chronic dissections treated. In the acute cases there were 15 retrograde dissections (Stanford type A) treated. Patients were followed with serial CT scans.

In patients with Stanford type A retrograde dissections treated with stent grafts the false lumen in the ascending aorta was obliterated within three months in 93% of the cases. Serial CT scans of 17 acute dissections and 11 chronic dissections showed the average false lumen diameter of the proximal mid and distal descending aorta in the acute dissection group was 15.9, 16.2, and 15.6mm respectively. In the chronic dissection group the average false lumen diameters of the proximal mid and distal descending aorta were 28.1, 25.2, and 21.0mm respectively. After 2 years the false lumen in the thoracic aorta was completely obliterated in 76% of the acute dissections and 36% of the chronic dissections treated with stent grafts. There were no cases of late rupture.

**Comment:** The study suggests a move towards more interventional treatment of acute thoracic dissection. Certainly, the success of obliterating the retrograde dissection into the aortic arch from a descending primary tear suggests that acute treatment of Type B dissections will be considered and performed in additional locations. Medical management of Type B dissection is highly effective but the fact that the chronic dissections have more difficulty in late obliteration of the false lumen after treatment with stent grafts suggests that it may be prudent to eventually treat Type B dissections acutely with stent graft placement.

#### Aortic neck attachment failure and the aneurx graft: incidence, treatment options, and early results Azizadeh A, Sanchez LA, Rubin BG, et al. Annals Vascular Surgery 2005;19:516-21

**Conclusion:** Proximal attachment failure associated with the AneuRx endoluminal aortic stent graft is relatively uncommon and associated with unfavorable neck anatomy.

**Summary:** The frequency of proximal attachment failure associated with the AneuRx aortic stent graft is unclear. The authors evaluated the need for intervention in patients with suboptimal proximal fixation of an AneuRx stent graft. They assessed the feasibility and early success of a variety of treatment strategies. There were 365 endovascular aneurysm repairs performed using the AneuRx graft from October 1999 to October 2003. Mean followup was  $23.7 \pm 14.8$  months. There were 20 patients considered for treatment following stent grafting. Fourteen had a Type 1 endoleak, one had a Type 3 endoleak, and five had an inadequate proximal seal zone (less than 1cm). Of these patients, 18 (90%) were treated successfully. (Nine with AneuRx cuffs, six with Talent cuffs, five with aortic stents, one with a redo aortic endograft, and two with surgical conversion.) Of the 20 patients with suboptimal initial outcome, one refused treatment and suffered late aneurysm rupture and one had persistent Type 1 endoleak despite endovascular treatment. Following the secondary intervention, there were no further endoleaks or graft migrations detected at a mean followup of  $13.9 \pm 11.8$  months.

**Comment:** Followup periods in this study are relatively short, with a mean followup of  $23.7 \pm 14.8$  months following initial placement of the AneuRx stent graft and a mean followup of only  $13.9 \pm 11.8$  months following secondary intervention in 20 patients with suboptimal proximal fixation. Likely there will be more proximal attachment site failures as time goes by. The follow-up periods presented here are simply too short to suggest either continued use of or immediate abandonment of the AneuRx graft system. Longer term data is required. A comparison of rates of proximal site attachment rate failure with other types of aortic stent grafts is also required.