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Impact of Routine Completion Angiography on the Results of Primary Carotid Endarterectomy: A Prospective Study in a Teaching Hospital

Ricco J.-B., Régnault de la Mothe G., Fujita S., Page O., Valagier A., Marchand C. Eur J Vasc Endovasc Surg 2011;41:579-88.

Objective: To assess the usefulness of completion angiography in the prevention of stroke, carotid occlusion and residual stenosis after primary carotid endarterectomy (CEA) in the setting of a teaching hospital.

Material and Methods: From January 1995 to August 2009, 1055 consecutive patients having 1179 CEAs were entered in a prospective study excluding patients with severe renal insufficiency, allergy to contrast media and patients with repeat CEA or carotid bypass. In this cohort, 552 patients (52.3%) were asymptomatic, 318 (30.2%) had a transient ischaemic attack (TIA) and 185 (17.5%) had a stroke. Routine completion angiography was obtained in all 1055 patients. The decision to perform a surgical revision was decided for any of the following defects: (1) a residual stenosis of more than 50% of the internal carotid artery (ICA) or common carotid artery (CCA) and of more than 70% of the external carotid artery (ECA), (2) any flap and (3) any intraluminal-filling defect. A postoperative duplex scan was obtained within a week after surgery and thereafter on a yearly basis. Median follow-up was 7 years.

Results: CEA was performed by a senior surgeon as first operator in 812 cases (69%) and by a trainee, with a scrubbed senior surgeon, in 367 cases (31%). Completion angiography revealed significant defects in 72 cases (6.1%) warranting revision for ECA flap ($n = 30$), thrombus in contact with the patch ($n = 7$), distal ICA flap or stenosis ($n = 20$) and CCA flap or residual plaque ($n = 15$).

Logistic regression analysis showed that total length of the carotid plaque >6 cm ($p = 0.02$, Odds ratio: 2.31; 95% confidence interval (CI) (1.21–3.72)), eversion endarterectomy of the ECA ($p = 0.01$, Odds ratio 3.41; 95%CI (2.10–5.94)) and trainee as first operator ($p = 0.02$, Odds ratio 2.42; 95%CI (1.81–4.23)) were independent predictors of operative defects seen on completion angiography. No complication in relation to carotid catheterisation or injection of contrast media occurred in this series.

The 30-day combined stroke and death rate was 1.5%, comparable between senior surgeons and trainees ($p = 0.60$). There was no significant difference in the combined stroke and death rate observed in patients with normal completion angiography (1.4%) compared with that of the patients with a defect corrected (2.8%) ($p = 0.28$, Odds ratio: 0.67; 95%CI (0.22–2.09)). But there was an increased incidence of postoperative TIA in the group with revision ($p = 0.001$, odds ratio: 5.8, 95%CI: 1.8–18.9).

At 7 years, the freedom rate from >50% carotid restenosis or occlusion was 87.5 ± 6.7% in patients with normal completion angiography and 92 ± 5.4% in patients, who undergo a surgical revision.

Conclusion: In a single centre, CEA with routine completion angiography resulted in good perioperative outcome. Plaque length, technique for external carotid artery (ECA) endarterectomy and trainee as first operator were independent predictors of operative defects seen on completion angiography.

Stroke after Cardiac Surgery and its Association with Asymptomatic Carotid Disease: An Updated Systematic Review and Meta-analysis

Naylor A.R., Bown M.J. Eur J Vasc Endovasc Surg 2011;41:607-24.

Objectives: (i) Prevalence of stroke in neurologically symptomatic/asymptomatic patients with unilateral/bilateral carotid disease (including occlusion) undergoing cardiac surgery without prophylactic carotid endarterectomy (CEA) or carotid stenting (CAS). (ii) Prevalence of stroke in asymptomatic patients with unilateral/bilateral carotid disease (excluding occlusion) who underwent isolated cardiac surgery. (iii) Prevalence of stroke in the hemisphere ipsilateral to a non-operated asymptomatic stenosis in patients with severe bilateral carotid disease undergoing a synchronous unilateral CEA + cardiac procedure.

Methods: Systematic Review and meta-analysis.

Results: Cardiac surgery patients with a symptomatic/asymptomatic 50–99% stenosis or occlusion incurred a 7.4% stroke risk (95%CI 4.8–9.9), increasing to 9.1% (95%CI 4.8–16) in those with 80–99% stenoses or occlusion. After excluding patients with a history of stroke/TIA and those with isolated/bilateral occlusions, the stroke risk fell to 3.8% (95%CI 2.0–4.8) in patients with asymptomatic 50–99% stenoses and 2.0% in those with 70–99% stenoses (95%CI 1.0–5.7). The prevalence of ipsilateral stroke in patients with a unilateral, asymptomatic 50–99% stenosis was 2.0% (1.0–3.8), while the risk of any stroke was only 2.9% (2%–5.7%). These risks did not increase with stenosis severity (70–99%, 80–99%). Patients with bilateral, asymptomatic 50–99% stenoses or a 50–99% stenosis + contralateral occlusion incurred a 6.5% stroke risk following cardiac surgery, while the risk of death/stroke was 9.1% (3.8%–20.6%). Patients with bilateral 80–99% stenoses undergoing a unilateral synchronous cardiac/carotid revascularisation incurred a 5.7% risk of stroke in the hemisphere ipsilateral to the non-operated, contralateral stenosis.

Conclusions: There is no compelling evidence supporting a role for prophylactic CEA/CAS in cardiac surgery patients with unilateral asymptomatic carotid disease. Prophylactic CEA/CAS might still be considered in patients with severe, bilateral asymptomatic carotid disease, but such a strategy would only benefit 1–2% of all cardiac surgery patients.

Open or Endovascular Repair of Aortoenteric Fistulas? A Multicentre Comparative Study

Kakkos S.K., Antoniadis P.N., Klonaris C.N., Papazoglou K.O., Giannoukas A.D., Matsagkas M.I., Kotsis T., Dervisis K., Gerasimidis T., Tsolakis I.A., Liapis C.D. Eur J Vasc Endovasc Surg 2011;41:625-34.

Objectives To compare aortoenteric fistula (AEF) outcome after endovascular (EV-AEFR) or open repair (O-AEFR).

Design Multicentre retrospective comparative study.

Materials/Methods 25 patients with AEF (24 secondary, 23 males, median age 75 years) after aortic surgery (median four years). Preoperative sepsis was evident in 19 cases. Eight patients were managed with EV-AEFR and 17 with O-AEFR.

Results The two groups were comparable in preoperative characteristics. In-hospital mortality after EV-AEFR was lower compared to O-AEFR (0% and 35%, respectively, $p = 0.13$). Similarly, morbidity after EV-AEFR was lower compared to O-AEFR (25% and 77%, respectively, $p = 0.028$). There was a trend for worse recurrence-free, sepsis-free, re-operation-free and AEF-related death-free rates after EV-AEFR, while the early survival advantage of EV-AEFR was lost after two years and the overall long-term survival rates (perioperative mortality included) of the two groups were similar. Preoperative sepsis had no effect on recurrence and sepsis-free rates ($p = 0.94$ and $p = 0.92$, respectively), but it was associated with worse two year overall survival (24% vs 50%, $p = 0.32$). On multivariate analysis, the number of symptoms (two vs one) at presentation was the single predictor of worse re-operation rates, AEF-related and overall survival.

Conclusions EV-AEFR was associated with no postoperative mortality in this study and can achieve satisfactory short and long-term results, comparable to O-AEFR. Further trials should focus on the role of EV-AEFR in patients at high risk for O-AEFR, due to shock or co-morbidities, or as a bridging procedure.

Spiral Vein Reconstruction of the Infected Abdominal Aorta Using the Greater Saphenous Vein: Preliminary Results of the Tilburg Experience

van Zitteren M., van der Steenhoven T.J., Burger D.H.C., van Berge Henegouwen D.P., Heyligers J.M.M., Vriens P.W.H.E. Eur J Vasc Endovasc Surg 2011;41:637-46.

Objectives: The aim of this study was to evaluate patients, who underwent spiral vein reconstruction of the abdominal aorta to repair infected aneurysms or replace infected aortic grafts.

Methods: All spiral vein reconstructions between March 2005 and May 2010 because of vascular infections of the abdominal aorta were retrospectively included. Diagnosis was determined by clinical examination, laboratory results, computed tomography (CT) and positron emission tomography (PET) scan and microbiological tests. Spiral vein reconstruction consisted of harvesting the greater saphenous vein (GSV) and construction into a spiral graft, aortic reconstruction and a transmesenteric omentumplasty. Primary outcomes were survival and limb salvage. Secondary outcomes included technical, clinical and ongoing success, re-infection, ongoing infection and patency.

Results: All five patients survived surgery, and there were no in-hospital deaths. Survival and limb salvage were 100% after median follow-up of 13 months (6–67 months). Further, technical, clinical and continuing success was 100%. There were no re-infections or ongoing infections.

Conclusions: Spiral vein reconstruction using the GSV showed good short-term survival and limb salvage. It, therefore, might be considered as an