143 operations: 85 were carotid subclavian reconstructions, 22 were carotid crossover bypasses, 30 were subclavian carotid reconstructions and 6 were carotid subclavian transpositions. Sixty (42%) were male, 20 (14%) were diabetic, and 63 (44%) were current smokers. Mean age was 63 (SD +/− 12.3). Indication for surgery was primarily for occlusive or embolic disease (97%). In those patients undergoing bypass graft, prosthetic (ePTFE) was used in 93%. Follow-up was performed at 3 and 6 month intervals by ultrasound and pulse volume recordings where indicated. Life table analyses were used to analyze patency.

Results: Of the 143 reconstructions operative mortality was 1 (0.7%). Non-fatal complications included 3 (2.1%) for bleeding, 1 (0.7%) wound infection, 2 (1.4%) TIA, 1 (0.7%) suffered a non-fatal stroke, 2 (1.4%) had postoperative myocardial infarctions, and 6 (4.3%) late (>30-day) occlusions. Follow-up was 1 to 124 months (mean: 39 months). Primary patency at 1 year was 98%, 3 years 96%, and 5 years was 92%.

Conclusion: Extra-anatomic arch reconstruction can be performed safely and appears to be durable over long term follow-up. Its use with endovascular grafting should provide a durable reconstruction for patients who require aortic "debranching" prior endovascular thoracic aortic aneurysm repair.

Spinal Cord Ischemia after Endovascular Repair of the Descending Thoracic Aorta in a Sheep Model

Böckler D., Kotelis D., Kohlhof P., von Tengg-Kobligk H., Mansmann U., Zink W., Hörner C., Ortlepp I., Habel A., Kauczor H.-U., Graf B., Allenberg J.-R. Eur J Vasc Endovasc Surg 2007;34:461-69.

Objectives: Spinal cord ischemia remains a devastating complication after thoracic aortic surgery. The aim of this study was to investigate the pathophysiology of spinal cord ischemia after thoracic aortic endografting and the role of intercostal artery blood supply for the spinal cord in a standardized animal model.

Methods: Female merino sheep were randomized to either I, open thoracotomy with cross-clamping of the descending aorta for 50 min (n=7), II, endograft implantation (TAG, WL Gore & Ass.), (n=6) or III open thoracotomy with clipping of all intercostal arteries (n=5) . CT-angiography was used to assess completion of surgical protocol and assess the fate of intercostal arteries. Tarloy score was used for daily neurological examination for up to 7 days post-operatively. Histological cross sections of the lumbar, thoracic and cervical spinal cords were scored for ischemic damage after stained with Hematoxylin-Eosin, Klüver-Barrrera and antibodies. Exact Kruskall-Wallis-Test was used for statistical assessment ($p<0.05$).

Results: Incidence of paraplegia was 100% in group I and 0% in group II ($p=0.0004$). When compared to the endovascular group, there was a higher rate of histological changes associated with spinal cord ischemia in the animals of the control group ($p=0.0096$). Group III animals showed no permanent neurological deficit and only 20% infarction rate ($p=0.0318$ compared to group I).

Conclusions: In sheep, incidence of histological and clinical ischemic injury of the spinal cord following endografting was very low. Complete thoracic aortic stent-grafting was feasible without permanent neurologic deficit. Following endovascular coverage or clipping of their origins, there is retrograde filling of the intercostal arteries which remain patent.

Meta-analysis of Randomized Trials Comparing Carotid Endarterectomy and Endovascular Treatment

Luebke T., Aleksic M., Brunkwall J. Eur J Vasc Endovasc Surg 2007;34: 470-79.

Objective and design: In order to evaluate the comparative efficacy and safety of carotid angioplasty with or without stent placement (CAS) versus carotid endarterectomy (CEA) we performed a meta-analysis of the presently available randomized studies.

Materials and methods: A multiple electronic health database search on all randomized trials describing CAS compared with CEA in patients with symptomatic or asymptomatic carotid artery stenosis was performed.

Results: Seven trials totalling 2972 patients (1480 randomized to CEA and 1492 randomized to CAS) were included in the meta-analysis. Results significantly favoured CEA over CAS in terms of death or any stroke at 30 days after procedure; the risk of death, any stroke, or myocardial infarction at 30 days; ipsilateral ischaemic stroke at 30 days; any stroke at 30 days; death or stroke at 6 months; and the risk of procedural failure.

There was a significantly reduced risk of cranial neuropathy at 30 days after CAS. There was no significant difference between CAS and CEA groups in the odds of death or disabling stroke at 30 days, death or stroke at 1 year after the procedure, and ipsilateral intracerebral bleeding at 30 days.

Conclusions: The results of this meta-analysis suggest that CEA can be performed with more safety than CAS. As a result, CEA remains the "gold standard" treatment for suitable de novo carotid stenosis and CAS should only be performed within randomized trials of stenting versus surgery.