

Selected Abstracts from the July Issue of the European Journal of Vascular and Endovascular Surgery

Piergiorgio Cao, MD, FRCS, Editor-in-Chief, and Jean-Baptiste Ricco, MD, PhD, Senior Editor

Validation of Video-based Skill Assessment in Carotid Artery Stenting

Van Herzele I., Aggarwal R., Malik I., Gaines P., Hamady M., Darzi A., Cheshire N., Vermassen F., (European Virtual Reality Endovascular Research Team EVEResT). *Eur J Vasc Endovasc Surg* 2009;38:1-9.

Objectives: To develop weighted error-based, generic and procedure-specific rating scales, to validate these scales for video-based assessment during virtual carotid artery stent (CAS) procedures and correlate them with simulator-derived metrics.

Methods: A questionnaire was developed to assess the technique during live CAS procedures. Errors were rated from 1 (unimportant) to 5 (life-threatening) by 28 highly experienced CAS (>50 CAS) physicians. Virtual CAS procedure was performed by 21 interventionalists with varied CAS experience. Fluoroscopy screen and hand movements were video-taped, and simulator-derived metrics recorded. Experienced CAS practitioners then rated the video-taped performances using weighted error, generic and procedure-specific rating scales.

Results: Of the 23 errors assessed, 12 were regarded as moderate (score 3), six serious (score 4) and four life-threatening (score 5). The generic rating scale was able to detect significant differences in performance between inexperienced and experienced CAS operators (score 25 vs. 32 respectively, $P < 0.01$). All scoring systems demonstrated good inter-rater reliability ($\alpha = 0.61-0.87$). Significant correlations were observed between simulator-derived and video-based scores: weighted error-based score ($r: 0.76, P < 0.01$), generic ($r: 0.62, P < 0.01$) and procedure-specific ($r: 0.76, P < 0.01$) rating scales.

Conclusions: The generic endovascular rating scale differentiated between levels of CAS experience among skilled interventionalists and correlated to simulator-based error scoring.

Extracranial and Transcranial Ultrasound Assessment in Patients with Suspected Positional 'Vertebrobasilar Ischaemia'

Sultan M.J., Hartshorne T., Naylor A.R. *Eur J Vasc Endovasc Surg* 2009; 38:10-13.

Objectives: A diagnosis of 'positional' vertebrobasilar ischaemia is considered in patients presenting with dizziness/vertigo during lateral neck rotation/extension and is attributed to bony 'nipping' of the vertebral artery (VA). This study reviewed our experience with extracranial and transcranial ultrasound to determine whether a diagnosis of 'positional' vertebrobasilar ischaemia was associated with any changes in flow in the extracranial VA and the P1 segment of the posterior cerebral artery (PCA) during head turning.

Methods: A retrospective case note review was undertaken in 46 patients with an accessible window for transcranial Doppler who had undergone extracranial and transcranial assessment of flow velocity and flow directionality in the VA and PCA while the head was moved into positions that normally triggered the patient's symptoms.

Results: Positional 'vertebrobasilar symptoms' were triggered by lateral head rotation in 35 patients (76%), while 11 (24%) developed symptoms following neck extension. Only one patient was found to have a significant carotid stenosis (symptoms unchanged following carotid endarterectomy) and none had significant disease in the extracranial VAs. None of the patients exhibited any change in extracranial VA flow during head turning/extension and none had reversal of flow either. Similarly, there was no change observed in the PCA flow characteristics during head turning. The majority of patients (74%) were subsequently referred to the Ear, Nose and Throat (ENT) department, and 94% of the patients noted an improvement in symptoms following entry into a vestibular rehabilitation programme.

Conclusions: A diagnosis of 'positional' vertebrobasilar ischaemia should be made with extreme caution and only after a specialist assessment in a Balance Centre.

Modern Treatment of Juxtarenal Abdominal Aortic Aneurysms with Fenestrated Endografting and Open Repair – A Systematic Review

Nordon I.M., Hinchliffe R.J., Holt P.J., Loftus I.M., Thompson M.M. *Eur J Vasc Endovasc Surg* 2009;38:35-41.

Introduction: Advances in endovascular technology have led to the introduction of fenestrated stents to treat juxtarenal aneurysms (JRAs), previously deemed unsuitable for standard endovascular repair (EVR). This article reviews the outcomes of fenestrated technology and makes a comparison with open repair.

Methods: A systematic review of the literature was performed.

Results: No randomised studies were identified. 8 cohort studies reporting 368 f-EVR cases and 12 cohorts reporting 1164 open repairs of JRAs were identified. Analysis of outcome measures found the f-EVR and open cohorts to be homogeneous. Combining studies identified an increased 30-day mortality after open repair when compared to f-EVR (Relative risk (RR) 1.03, 95% Confidence interval (CI) 1.01-1.04, $p = .02$), 2% increased absolute mortality. No difference was identified in postoperative permanent dialysis dependence (RR 1.00, CI 0.99-1.01, $p = 1$). Transient renal failure was more common following open repair (RR 1.06, CI 1.01-1.12, $p = .03$). Early re-interventions were less common following open repair (RR 0.87, CI 0.83-0.91, $p = .0001$).

Conclusions: Selective f-EVR appears to have reduced peri-operative mortality compared with traditional open surgery, yet selectivity within the study groups and lack of a rigorous classification prohibit more robust comparison. Promising short-term results confirm a role for f-EVR in management of complex abdominal aneurysms.

Oversizing of Aortic Stent Grafts for Abdominal Aneurysm Repair: A Systematic Review of the Benefits and Risks

van Prehn J., Schlösser F.J.V., Muhs B.E., Verhagen H.J.M., Moll F.L., van Herwaarden J.A. *Eur J Vasc Endovasc Surg* 2009;38:42-53.

Objective: Sizing of aortic endografts is an essential step in successful endovascular treatment of aortic pathology, although consensus regarding the optimal sizing strategy is lacking. Some proximal oversizing is necessary to obtain a seal between the stent graft and the aortic wall and to prevent the graft from migrating, but excessive oversizing might influence the results negatively. In this systematic review, we investigated the current literature to obtain an overview of the risks and benefits of oversizing and to determine the optimal degree of oversizing of stent grafts used for endovascular abdominal aortic aneurysm repair.

Methods: PUBMED, EMBASE and Cochrane Library databases were searched for articles related to the impact of proximal endograft oversizing on complications after endovascular aneurysm repair. After in- and exclusion, 23 relevant articles reporting on 8415 patients remained for analysis and critical appraisal.

Results: Most studies that investigated neck dilatation are flawed by poor methodology. No clear relationship between proximal oversizing and neck dilatation relative to the first post-operative scan was found. None of the studies described a positive relationship between the degree of oversizing and the incidence of endoleaks. On the contrary, oversizing up to 25% seems to decrease the risk of proximal endoleaks. There are conflicting data regarding the risk of graft migration when oversizing by more than 30%.

Conclusions: Based on the best available evidence, the current standard of 10-20% oversizing regime appears to be relatively safe and preferable. Oversizing >30% might negatively impact the outcome after EVAR. Studies of higher quality are needed to further assess the relationship between proximal oversizing and the incidence of complications, particularly regarding the impact on aneurysm neck dilatation.

Management of Limb Ischaemia in the Neonate and Infant

Arshad A., McCarthy M.J. *Eur J Vasc Endovasc Surg* 2009;38:61-65.

Aim: This article aims to provide the reader with an insight into the diagnosis and management of limb ischaemia presenting in neonates and infants by examining the published literature.

Materials and methods: A Pubmed search and an Ovid Medline/Embase search were both performed. The keywords were: 'neonatal' or 'paediatric' or 'pediatric' and 'limb' and 'ischemia' or 'ischaemia' and relevant articles were retrieved and analysed. Articles pertaining to children over the age of 3 years and non-English literature articles were excluded.

Selective and Sustained Delivery of Basic Fibroblast Growth Factor (bFGF) for Treatment of Peripheral Arterial Disease: Results of a Phase I Trial

Hashimoto T., Koyama H., Miyata T., Hosaka A., Tabata Y., Takato T., Nagawa H. *Eur J Vasc Endovasc Surg* 2009;38:71-75.

Objectives: The aim of this study was to evaluate the safety of selective and sustained delivery of basic fibroblast growth factor (bFGF) using acidic