Aim: There are no reported studies in the literature describing ultrasound guided infiltration (USGI) of local anaesthetic (LA) in endovascular aneurysm repair (EVAR) in patients in whom general/regional anaesthesia (GA/RA) is contra-indicated. We report for the first time, a new technique of LA infiltration for EVAR and investigate its acceptability to patients using surrogate markers of peri-operative pain (POP), anxiety (POA) and patient satisfaction (PS).

Methods: All patients unsuitable for GA/RA between October 2013 and September 2014 under a single consultant Vascular Surgeon at a District General Hospital were included. USGI was used to block the appropriate nerve territories and tumesce the common femoral artery in an attempt to provide an effective LA. Visual analogue scales were used to assess the aforementioned parameters immediately following the procedure prior to leaving theatre.

Results: 5 patients were unable to have GA/RA and were used in this feasibility study; 3 were elective and 2 emergency, 3 had bilateral and 2 had unilateral USGI. The median POP, POA and PS were 2.98/10 [0.4-5.3], 28.5% [0-73] and 92.2% [73-100] respectively. The procedure had an 86.4% [48-100] friends and family recommendation score.

Conclusion: This feasibility study demonstrates an effective local anaesthesia for EVAR can be achieved using USGI using the surrogate markers POP, POA and PS.

0705: HOW CAN SURGEONS MONITOR THEMSELVES BETTER: VALIDATING PERFORMANCE OF CUSUM (SPRT) REAL-TIME MONITORING METHODS USING ANONYMISED UK NATIONAL VASCULAR DATABASE

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Aim: Traditional audits are unable to provide short feedback loops to quickly identify underperforming surgical units. We aim to assess reliability and accuracy of continuous monitoring of vascular outcomes using CUSUM.

Methods: Cumulative mortality, funnel plot and CUSUM (SPRT) were applied to the National Vascular Database (NVD) and performances compared. In-hospital mortality for 140 centres (1995-2011) following elective abdominal aneurysm repair were compared. Data was adjusted for case-mix. Doubling of odds ratios (OR) were considered a proxy for significant deviation from the accepted surgical failure rate from national mortality rates (p). Control limits were approximated using simulation, Markov chain and fractional polynomial techniques. Average run length was used as a performance measure.

Results: Compared to audit, CUSUM has significant sensitivity to a unit’s outlier status, with an average of 0.89 alerts (no outlier status) to 23 alerts (outlier status). For best CUSUM performance, values of OR=3 and p=3 correlated with CUSUM sensitivity of 80%, specificity of 80% and positive predictive value of 78%. Fractional polynomial technique and CUSUM simulations correlated well to real-time NVD data analysis.

Conclusion: CUSUM techniques can be optimised to detect outliers in real-time, and adjusted for case-mix to ensure a ‘level playing field’ for all units.

0725: IS IT POSSIBLE TO QUANTIFY THE CHANGE IN SERVICE DEMAND FOR AORTIC SURGERY FOLLOWING THE CENTRALISATION PROCESS: AN NVD-BASED PREDICTIVE MODEL

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Aim: The centralisation of aortic aneurysm surgery centres has created challenges through limited availability of key resources. This study aims to compare changes in aortic surgery workload between 2008-2010 and 2010-2012 using data from the National Vascular Database (NVD).

Methods: Data from the NVD for each Trust was compared between two time frames. Three models were used to provide predictive model: ANOVA analysis, A Wilcoxon Rank-Sum Test and regression coefficient estimation. Multiple regression analysis was used to build a predictive model to estimate changes in workload. Actual vs. predicted workload was tested, and standardized residual values analysed.

Results: In the second period, 1117 more open and 3916 more EVAR procedures were performed. The average of submitted procedures rose by 52 cases in the second period. Average mortality rate fell by 5% (open) and 0.1% (EVAR). Wilcoxon Rank-Sum Test demonstrated a significant increase (p<0.005) in the overall workload for all relevant Trusts. Based on this analysis, a prediction equation was devised: 

\[ \text{workload}_{2012} = A \times B \times \text{workload}_{2010} \]

where A = 34.75 and B = 1.21.

Conclusion: For each centre, workload increased by 121 times that of pre-centralisation. Vascular service planning should consider this and match capacity (theatre sessions, secretarial support, and staff) accordingly.

0745: EVIDENCE BASED MANAGEMENT OF CRANIOFACIAL HYPERhidrosis: A SYSTEMATIC REVIEW

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Aim: Primary Craniofacial Hyperhidrosis (CH) can adversely impact quality of life. No comprehensive review of management exists. Here, we review the evidence to guide CH management.

Methods: Two independent reviewers performed a systematic review using PRISMA guidelines. MEDLINE and EMBASE were searched (1966-2014). Articles containing MeSH terms “Hyperhidrosis”, “Head”, “Neck”, and synonymous text words. Inclusion criteria were experimental and observational studies addressing CH treatment.

Results: Of 832 references, 26 met inclusion criteria. Twenty-two studies evaluated T2 sympathetic ablation (level III evidence). Outcome measures were subjective and follow-up was short (18/24 <2yrs). Reported efficacy was high (70-100%), recurrence rates were low (0-7.8%), and complications transient. 10-80% experienced troubling compensatory sweating. One RCT and one observational study evaluated Botox. Both employed objective outcome measures, with similar findings. 100% efficacy lasted a median of 5-6 months. The main side effect was frontalis muscle inhibition. Two studies evaluated Anticholinergic therapy-topical glycopyrrolate (efficacy 96%) and minimal oxybutynin (efficacy 60%).

Conclusion: There are few quality studies evaluating CH treatment clinically. Based on current available evidence, we recommend topical glycopyrrolate and intradermal Botox as first line therapies due to their efficacy and safety. T2 sympathectomy should be reserved for patient’s refractory to first line therapy.

0760: RADIATION EXPOSURE DURING COMPLEX ENDOVASCULAR REPAIR OF THE AORTA


Aim: To compare radiation dose to the operating team for complex (branched and fenestrated) endovascular aortic repairs with safe limits set by the International Consultation on Radiological Protection (ICRP) and to determine predictive factors of radiation exposure.

Methods: Elective branched and fenestrated procedures were analysed prospectively in a hybrid-operating theatre using cumulative electronic dosimeters. Radiation dose to the body, both over and under lead garments, as well as to the head, were recorded for the main-operator and assistant. Mann-Whitney U, univariate and multivariate linear regression tests were employed.

Results: Of 17 cases studied, over-lead body dose (IQR) was significantly higher for the main operator compared with the assistant, 80μSv (37-163) vs 32μSv (6-48); p=0.003, as was the case for head dose, 54μSv (24-130) vs 15μSv (7-43); p=0.022. Operator height, total digital subtraction angiography (DSA) acquisition time and acquisition time in left anterior-oblique (LAO) and cranial positions, p<0.05, independently predicted main operator head dose.

Conclusion: Radiation exposure in the hybrid-operating environment compares favourably with doses previously measured in the interventional radiology-suite. However, every effort must be made to minimise DSA runs, as well as time spent in LAO and cranial positioning as adverse stochastic effects may occur at any dose.