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Risk Models for Mortality Following Elective Open and Endovascular Abdominal Aortic Aneurysm Repair: A Single Institution Experience

Objectives: To develop and validate an “in house” risk model for predicting perioperative mortality following elective AAA repair and to compare this with other models.

Design: Multivariate logistic regression analysis was used to identify risk factors for perioperative-day mortality from one tertiary institution’s prospectively maintained database.

Materials and methods: Consecutive elective open (564) and endovascular (589) AAA repairs (2000-2010) were split randomly into development (810) and validation (343) data sets. The resultant model was compared to Glasgow Aneurysm Score (GAS), Modified Customised Probability Index (m-CPI), CPI, the Vascular Governance North West (VGNW) model and four other models.

Results: Variables associated with perioperative mortality included: increasing age (P = 0.034), myocardial infarct within last 10 years (P = 0.0008), raised serum creatinine (P = 0.0005) and open surgery (P = 0.0001). The areas under the receiver operating characteristic curve (AUC) for predicted probability of 30-day mortality in development and validation data sets were 0.79 and 0.82 respectively. AUCs for GAS, m-CPI and CPI were poor (0.63, 0.58 and 0.58 respectively), whilst VGNW and Medicare model were fair (0.73 and 0.79 respectively).

Conclusions: In this study, an “in-house” developed and validated risk model has the most accurate discriminative value in predicting perioperative mortality after elective AAA repair. For purposes of comparative audit with case mix adjustments, national models such as the VGNW or Medicare models should be used.

Outcomes of Endovascular Aneurysm Repair in Patients with Hostile Neck Anatomy

Objectives: This study aims to evaluate outcomes following EVAR in patients with hostile neck anatomy (HNA).

Materials and methods: Data prospectively collected from 552 elective EVARs were analysed retrospectively. Data regarding neck morphology was obtained from aneurysm stent plans produced prior to EVAR. HNA was defined as any of; neck diameter >28 mm, neck angulation >60°, neck length <15 mm, neck thrombus, or neck flare.

Results: 552 patients underwent EVAR. Mean age 73.8 years, mean follow-up 4.1 years. 199 patients had HNA, 353 had favourable neck anatomy (FNA). There was a significant increase in late type I endoleaks (FNA 4.5%, HNA 9.5%; P = 0.02) and total reinterventions (FNA 11.0%, HNA 22.8%; P < 0.01), and a significant decrease in late type II endoleaks in patients with HNA (FNA 16.7%, HNA 10.6%; P < 0.05). There was no significant difference in technical success (FNA 0.6%, HNA 2.0%; P = 0.12), 30-day re-intervention (FNA 2.8%, HNA 5.0%; P = 0.12), 30-day mortality (FNA 1.1%, HNA 0.5%; P = 0.45), 30-day type I endoleaks (FNA 0.8%, HNA 2.5%; P = 0.12), 5-year mortality (FNA 15.1%, HNA 14.6%; P = 0.86), aneurysm-related mortality (FNA 1.7% versus HNA 2.0%; P = 0.79), stent-graft migration (FNA 2.5%, HNA 3.0%; P = 0.75), sac expansion (FNA 15.0%, HNA 9.5%; P = 0.22), or graft rupture (FNA 1.1%, HNA 3.5%; P = 0.05). Binary logistic regression of individual features of HNA revealed secondary intervention (P = 0.009), technical failure (P = 0.02), and late type I endoleaks (P = 0.002), were significantly increased with increased neck diameter.

Conclusions: HNA AAAs can be successfully treated with EVAR. However, surveillance is necessary to detect and treat late type I endoleaks in HNA patients.

Endovenous Laser Ablation of the Great Saphenous Vein Using a Bare Fibre versus a Tulip Fibre: A Randomised Clinical Trial

Objectives: This clinical trial aimed to evaluate the clinical results of the use of a tulip fibre versus the use of a bare fibre for endovenous laser ablation.

Methods: In a multicentre prospective randomised trial 174 patients were randomised for the treatment of great saphenous vein reflux. A duplex scan was scheduled 3 month, 6 months and 1 year postoperatively. Ecchymosis was measured on the 5th postoperative day. In addition, pain, analgesics requirement, postoperative quality of life (CIVIQ 2) and patient satisfaction rate were noted.

Results: Patients treated with a tulip fibre had significantly less postoperative ecchymosis (0.04 vs. 0.21, p = 0.001) and pain (5th day) (1.00 vs. 2.00, p < 0.001) and had a better postoperative quality of life (CIVIQ 2) and patient satisfaction rate (p = 0.564). The total occlusion rate at 1 year was 97.02% and there was no significant difference between the two groups (p = 0.309).

Conclusion: Using a tulip fibre for EVLA of the great saphenous vein results, when compared with the use of a bare fibre, in equal occlusion rates at 1 year but causes less postoperative ecchymosis and pain and in a better postoperative quality of life.