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O-081 Flow Mediated Dilatation as a Biomarker for the Progression of Abdominal Aortic Aneurysms

Abdominal Aortic Diseases

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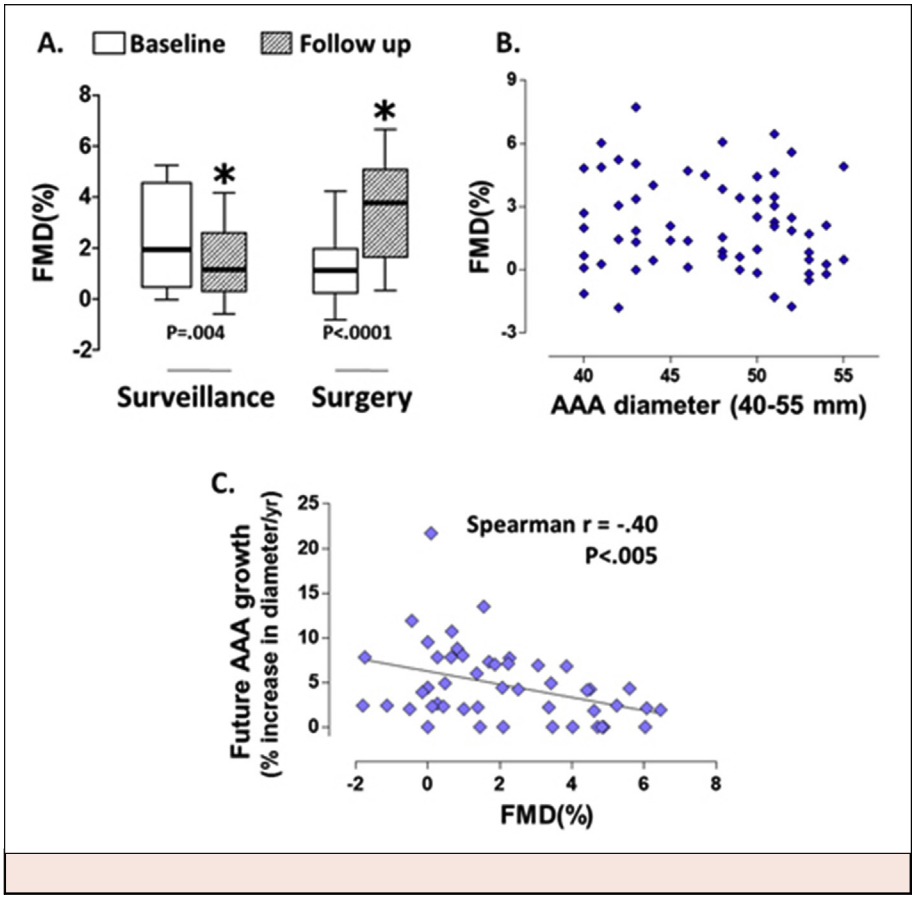
Introduction - Biomarker(s) for the prediction of future progression rate of abdominal aortic aneurysms (AAA) may be useful to stratify the management of individual patients. Flow mediated dilatation of the brachial artery (FMD) is a recognised non-invasive measurement for endothelial function. Previous studies have showed FMD to be inversely correlated with AAA size. We hypothesise that FMD is a potential biomarker of AAA progression and reflects the temporal changes of endothelial function during AAA progression.

Methods - In a prospectively recruited cohort of patients with AAAs (Oxford Abdominal Aortic Aneurysm Study), AAA size was recorded by anteroposterior diameter (APD) (outer to outer) on ultrasound. Annual AAA progression was calculated by (ΔAPD/APD at baseline) / (number-of-days-lapsed/365days). FMD was assessed at the same time points throughout the natural history of AAA progression. We further focused on the subgroup of AAAs with APD 40 to 55mm, as this subgroup has been the subject of previous trials for early in small AAAs.

Results - FMD deteriorates during the course of AAA surveillance (from a median of 2.0% at baseline to 1.2% at follow up, P=.004), while surgical repair of AAAs [n=50; (open repair n=22, endovascular repair n=28]) leads to an improvement in FMD (from 1.1% pre-op to 3.8% post-op, P<.0001), irrespective of the type of surgery (Figure A). In AAAs with APD between 40 to 55mm, there is no correlation between the APD and FMD (n=64, Spearman r =-0.1) (Figure B). However, there is a significant inverse correlation between FMD and the future 12 month growth of AAA (Spearman r=-.4, P<0.05) (Figure C).



Conclusion - FMD deteriorates during the natural history of AAA, and is improved by surgery. FMD is inversely correlated with future AAA progression in humans, particularly in the 40-50mm group. Our findings highlight the utility of FMD as a potential biomarker for AAA progression.

O-082 Open Abdomen Therapy with Vacuum and Mesh-Mediated Fascial Traction after Aortic Repair — An International Multi-Centre Study

Abdominal Aortic Diseases

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Introduction - Abdominal compartment syndrome (ACS) may be a lethal complication after aortic surgery. Open abdomen (OA) therapy may be necessary using a temporary abdominal closure dressing. The aim of the study was to analyze the results of OA therapy with vacuum and mesh-mediated fascial traction (VACM) after aortic surgery.

Methods - Patients were registered prospectively in clinical data-bases, case-records were reviewed retrospectively. Consecutive patients treated with OA and VACM after aortic surgery at six vascular centres 2006-2015 were included.

Results - The study included 191 patients, 155 (81.2%) men. Median age was 71 years (IQR 66—76). The etiologies were; ruptured abdominal aortic aneurysm (RAAA) (69.1%), non-ruptured AAA (27.2%) and acute type B dissection (3.7%). Endovascular/hybrid and open repairs were performed in 49 and 142 patients, respectively. Among the 157 patients who were alive at termination of OA therapy, the duration of OA was 11 days (IQR 7—16). The primary delayed fascial closure rate was 91.8% (145/157), eleven patients underwent abdominal wall reconstruction, and one was left with a giant ventral hernia. Patients with OA initiated at secondary operation (N=88), compared to those left with OA at the primary operation(N=103) had; more severe OA status (p=0.006), more intestinal ischaemia (p=0.002), longer duration of OA (p=0.007), lower primary delayed fascial closure rate (p=0.003), more renal replacement therapy (RRT, p<0.001), longer intensive care unit stay (p=0.005) and higher in-hospital mortality (p=0.012). Nine patients developed entero-atmosperic fistulae, their mortality was 89%. Seven developed graft infections, all were diagnosed within 6 months, with a mortality of 28.6% at one year. In-hospital mortality was 39.3%. Intestinal ischaemia (OR 3.71, 95% CI 1.55—8.91]), RRT (OR 3.62 [95% CI 1.72—7.65]) and age (OR 1.12, [95% CI 1.06—1.12]), were independent factors associated with in-hospital mortality

Conclusion - Vacuum and mesh-mediated fascial traction was associated with a high primary delayed fascial closure rate after often prolonged OA therapy following aortic surgery. Patient outcomes were better when OA was initiated at the primary operation, compared to at secondary operation.

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O-083 Targeted Screening of Siblings to Individuals with Abdominal Aortic Aneurysms Is Cost-Effective

Abdominal Aortic Diseases

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Introduction - International guidelines recommend screening for Abdominal Aortic Aneurysm (AAA) in risk groups. Population-based screening of one such risk group; 65-year-old men, has been implemented in some countries and is highly cost-effective. A risk group, not systematically targeted, but with higher documented prevalence than 65-year-old men, is siblings to individuals with an AAA. In this health-economic model-based study, the cost-effectiveness and clinical impact of targeted AAA screening of siblings versus no screening was analysed.

Methods - A previously published AAA screening Markov model, validated against the Multicentre Aneurysm Screening Study (MASS), as well as contemporary outcome of a National AAA Screening programme was used. Two methods of identifying and inviting siblings were analysed; one by direct querying AAA patients for siblings in a clinical setting (Method A), and one registry-based (Method B) employing a national multi-generation register with data on all siblings. Prevalence in the model analysis was based on observed data on ultrasound detected AAAs in siblings to individuals with AAA. The remaining parameters; including costs, were extracted from RCTs, vascular registers, literature, and on-going screening programmes. Outcome was cost-effectiveness, probability of cost-effectiveness at a commonly used Willingness-to-pay (WTP) threshold of €23,000/QALY, risk reduction of death from AAA, quality adjusted life-years (QALY) gained, and total costs on a national scale.