Correspondence

Comment on ‘A Systematic Review of the Role of Cardiopulmonary Exercise Testing in Vascular Surgery’

Dear Editor,

We read with interest the article by Young et al. and value their contribution to this area of clinical practice.1 We too are of the opinion that more research in this area would be invaluable. However, we are some what surprised regarding the assertion that cardiopulmonary exercise testing (CPET) not be used out of a research environment.

We agree that CPET should not be used simply to permit or deny patients surgery but would suggest its value lies in identifying those in whom endovascular aneurysm repair (EVAR) may be a safer alternative. The suggestion that decision making is solely based on a series of measured numbers such as the anaerobic threshold or VO2 max is incorrect. It forms a part of a comprehensive assessment by both surgeon and anaesthetist prior to any decision on subsequent management.

Although the review has highlighted the paucity of data and limitations of CPET the deficiencies of other risk stratification methods suggested in the article have not been mentioned. Indeed if existing methods were satisfactory then CPET would not be gaining such popularity as an assessment tool. The Revised Cardiac Risk Index (RCRI) has consistently been shown to perform poorly in vascular patients.2 Echocardiography has not been shown to have any value in predicting outcome and is not included in current guidelines for routine preoperative evaluation.3 Despite this, it is still commonly utilised by clinicians exemplifying the discrepancy between available data and clinical practice.

The authors mention that CPET is not included in current guidelines for perioperative evaluation before AAA repair. We would draw the authors attention to the AAA Quality Improvement Program (QIP) guidance which does give mention of the utility of CPET but does not mention RCRI, dobutamine stress echocardiography or biochemical markers.4

We feel it is premature to limit the promising utility of CPET on the basis of this review.

References


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Reply to ‘Comment on a Systematic Review of the Role of Cardiopulmonary Exercise Testing in Vascular Surgery’

Dear Editor,

We are grateful for the interest in our systematic review from Timbrell et al., who suggest that the value of CPET may lie in identifying those in whom endovascular aneurysm repair (EVAR) may be a safer alternative for patients with abdominal aortic aneurysm (AAA). We disagree with this assertion, as available data increasingly suggest that aneurysm morphology, rather than patient physiology or comorbidity, is the stronger predictor of long-term outcome from EVAR.1–4 Early physiological scoring systems for open AAA repair perform with reduced accuracy in patients selected for open repair in the endovascular era.5 While ongoing research has demonstrated the comparative utility of newer scoring systems for predicting the outcome of open AAA repair in contemporary practice,6 no such evidence currently exists for CPET. We therefore reiterate the conclusion that the role of CPET in determining whether patients should undergo open repair, EVAR, or conservative management of AAA, requires investigation in a formal research environment, with appropriate safeguards for patient safety.

We appreciate that CPET has its enthusiasts, but if its value is to be better recognised and understood in vascular patients, then its use must be investigated through well-designed research. If units


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that have routinely used CPET in patients with AAA related their data to outcomes through prospective, local or national registries then the vascular community might develop a greater understanding of its uses and limitations. Timbrell et al. highlighted the mention of CPET within the AAA Quality Improvement Program (AAQIP) guidance. We support these guidelines but this particular recommendation was based on expert opinion; the guidance does not cite a higher level of evidence to support the inclusion of CPET, and the lack of evidence surrounding the inclusion of CPET prompted the present systematic review. The review itself represents new evidence that might inform revisions to AAQIP guidance.

At present, only 32% of UK hospitals have access to CPET. CPET is not widely used outside the UK, and the predominance of Endovascular Aneurysm Repair has considerably changed the context for physiological risk-stratification of patients with AAA prior to surgery. Nonetheless, population data have suggested that non-invasive cardiac stress testing might confer benefit prior to elective non-cardiac surgery for the subgroup at high risk of peri-operative cardiac complications, and these data illustrate that the role of CPET in vascular patients deserves focussed investigation. The clear potential of CPET to improve patient selection, optimisation and surgical outcome in vascular surgery remains in need of formal research.

References


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CHIVA Effectiveness Score: The Correct One is Below

The article Validation of a New Duplex Derived Haemodynamic Effectiveness Score, the Saphenous Treatment Score, in Quantifying Varicose Vein Treatments by C.R. Lattimer et al. EJVES 43 (2012) 348–354 proposes: “Protagonists for saphenous conservation surgery (CHIVA) have the option to change the scoring by giving competency the improved score of 1 and occlusion a reduced score of 2. However, it is important that the order of precedence should remain the same with reflux prioritizing over occlusion and occlusion prioritizing over competency”. A CHIVA procedure disconnects and diverts shunts thereby fractionating the blood columns. Saphenous reflux is not a failure provided there is an effective disconnection. This can be confirmed using Valsalva manoeuvre when the reflux is no longer increased or triggered. This is because the saphenous vein is no longer overloaded by inflow from the deep veins. Reflux in this setting represents an outflow drainage path. The same principle applies to reflux in saphenous tributaries and other areas of detectable reflux. These refluxing flows occur because they are draining their physiological territories according to a physiological a “hierarchy” which occurs when the shunts are successfully corrected. Reverse flow in this situation should not be considered a failure. Occlusion is a failure because the CHIVA’s purpose is conservative. So, failure occurs when there is an occlusion and also when the reflux can be induced by a Valsalva manoeuvre at the saphenofemoral junction, saphenous trunk or its tributaries. Success is represented by antegrade flow (competency) or Valsalva negative reflux in these areas.

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