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Invited Commentary

Commentary on 'A Systematic Review of the Role of Cardio-pulmonary Exercise Testing in Vascular Surgery'

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This systematic review (SR) regarding the technology cardio-pulmonary exercise testing (CPET) in the risk assessment before abdominal aortic aneurysm (AAA) repair or lower extremity bypass (LEAB) gives rise to several questions. How are (diagnostic) technologies evaluated before introduction into routine health care? CPET measures integrated cardiopulmonary function. This is not equal to adequate prediction of risks associated with vascular surgery. This is a timely SR since the technology is reportedly disseminating in routine health care, despite insufficient scientific evidence. This technology should be used in research settings to collect further knowledge and increase the quality of evidence, followed by a broader (systematic) assessment of the added value.

How should diagnostic tests be studied? As mentioned in the SR, adequate studies of diagnostic accuracy are needed. Optimal CPET measures and threshold values need to be defined allowing calculation of sensitivity, specificity and predictive values. Diagnostic accuracy alone is not sufficient. Also therapeutic choice impact (did test affect treatment plan?) and clinical outcome efficacy (overall patient outcome better when test is used?) studies are important to better understand the test's value.

Risk stratification aims at defining the risk of perioperative adverse events, the need for risk reducing strategies and long-term prognosis. Evidence based risk reducing strategies, besides optimal medical treatment especially for unstable conditions, are scarce. Coronary revascularization does not reduce overall perioperative risks.¹ Many vascular units probably use clinical evaluation and/or risk indices for routine risk stratification before interventions.

Extended routine risk assessment may be indicated if it could influence the therapeutic choice and lead to improved overall patient outcome. Which patients would benefit? Critical limb ischemia patients in the need of LEAB are often high risk patients needing revascularisation or amputation. Amputation is not associated with a lower risk than infrainguinal bypass in such patients.² Regarding AAA, 30-days mortality rates in Sweden are 1.0% for elective EVAR and 3.2% after open repair.³ EVAR thus is a low risk procedure but extended risk assessment might be indicated before open repair at least in patients with uncertain functional capacity. Although non-operative management is a therapeutic choice, the rupture rate is 17–27% in AAA >60 mm (17.4 – 27.0 per 100 person-years),⁴ indicating a poor outcome after non-operative management. This suggests a need for studies of the effect of CPET on overall outcome mainly in AAA patients unsuitable for EVAR. Is extended risk assessment indicated for other vascular patients? I believe the answer may be no for most patients.

References

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