Abstract: P6172

Management of silent myocardial ischemia in patients with peripheral arterial disease needing surgery

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Topic(s):
CT-derived FFR

Citation:
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Background: Patients with peripheral arterial disease (PAD) needing surgery have increased risk for post-operative myocardial infarction (MI)/death due to coexisting coronary artery disease (CAD). Coronary CT angiography (CTA)-derived fractional flow reserve (FFRCT) can reliably identify ischemia-producing coronary stenosis in patients with suspected CAD but its value in PAD patients is unknown.

Purpose: To determine the prevalence of silent coronary ischemia in PAD patients undergoing surgery and to assess the value of FFRCT in guiding management of patients with multisite arterial ischemia.

Methods: Patients admitted for elective carotid, aortic or peripheral vascular surgery with no cardiac history or CAD symptoms were enrolled in a prospective, open-label, ethics committee-approved study and underwent pre-op CTA and FFRCT evaluation with results available to treating physicians. Ischemia-producing coronary stenosis was defined as FFRCT=0.80 distal to stenosis in >2mm diameter vessels. Patient management was guided by a multidisciplinary team of cardiologists, cardiovascular surgeons and anaesthesiologists. Primary endpoint was major adverse cardiac events (MACE= cardiac death, MI, urgent revasc) at 30 days with follow up at 3,6,12 months.

Results: Coronary CTA and FFRCT analysis was performed in 179 consecutive patients (age 66±8 years, male 78%, hypertension 79%, diabetes 10%, dyslipidemia 31%, smoking 37%). CTA revealed extensive coronary calcification (Agatston score 995±1004, range 0-4810) and =50% stenosis in 64% of patients. Ischemic coronary stenosis (FFRCT=0.80) was present in 114 patients (64%) with FFRCT =0.75 in 97 (54%) and multivessel ischemia in 63(35%). Clinically indicated vascular surgery was performed as planned in 170/179 patients (95%) with cardiac anaesthesia and close monitoring and postponed in 9 patients for coronary revascularization (3) or medical/other therapy (6). There were no post-op cardiac complications. Elective coronary angiography, performed 1-3 months post surgery in 86 patients with left main, severe or multivessel ischemia, confirmed significant stenosis in each patient with revascularization in 58 patients (53 PCI and 5 CABG) including 8 for LM disease. There have been no cardiovascular deaths; 3 patients have died of lung cancer which was first discovered on CTA. One patient had peri-procedural MI at time of PCI and one had MI and urgent PCI at 6 months. MACE at 30 days=0/179, 3 months = 1/154, 6 months=2/123, 12 months=0/65.

Conclusions: Patients undergoing elective PAD surgery have a high prevalence (64%) of unsuspected ischemia-producing coronary stenosis. Pre-op diagnosis with CTA- FFRCT can help guide a multidisciplinary team approach with optimum medical management and staged peripheral and coronary revascularization. Favourable early results are promising and suggest the need for prospective controlled studies to define the role of coronary revascularization in PAD patients.
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