

Lower limb complications

Don't break my heart



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The past decade has seen some major advances in the understanding of type 2 diabetes as a cardiovascular disease (something that is also recognised in the Cardio Digest section of this journal). Patients with diabetic foot disease are a particularly high-risk group.

The mortality of ischaemic ulceration patients in our centre approaches that of patients following myocardial infarction. Two papers this quarter illustrate different approaches to these problems.

Monahan and colleagues (see below) bravely describe their evaluation that the current American vogue for working up asymptomatic patients with peripheral vascular disease – based on the assumption that they will have silent cardiac disease – does not influence the outcome of elective arterial reconstruction. Exclusions included a previous cardiac investigation in the past 5 years and any emergency procedure. The study numbers were relatively small, with only 61 not-worked-up

and 79 worked-up patients. Overall mortality was lower than might have been expected, with only one death in each group. However, it seems clear that performing unnecessary tests has no clear benefits and may have negative effects, because false-positive results in low-risk patients may lead to the deferral and possible cancellation of operations.

If we are to forgo cardiac tests – and I think this is a reasonable course for most patients – it would be sensible to ensure that vascular surgery patients have the best risk-reduction therapy possible, in order to minimise the risks of postoperative cardiac events.

The paper by O'Neil-Callahan and colleagues (see right) is a retrospective review of cardiac events in patients undergoing vascular surgery. Of the 1163 patients, 51 % had diabetes. While diabetes increased the risk of postoperative cardiac events, statins halved this risk. There are clear indications for patients with diabetes and peripheral vascular disease to be prescribed statins in adequate doses (such as simvastatin or pravastatin 40 mg daily), and if they have additional benefits such as these then I would urge their universal use in such patients.

JOURNAL OF VASCULAR SURGERY

Preoperative cardiac evaluation has no effect in patients without symptoms

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓

1 Theoretically, patients with diabetes who receive revascularisation for peripheral artery disease are at an increased risk of adverse events.

2 The American College of Cardiology and American Heart Association (ACC/AHA) thus recommend cardiac evaluation before this procedure, but there has not been a prospective, randomised trial to assess the benefit of this.

3 In this retrospective study, 140 patients met the inclusion criteria for a preoperative cardiac evaluation (based on the AHA/ACC algorithm) and 79 of these were worked up, while the other 61 were not.

4 The preoperative cardiac evaluation did not improve perioperative mortality, postoperative cardiac morbidity (including congestive heart failure, myocardial infarction and arrhythmia requiring treatment) or late survival.

5 Cardiac evaluation is costly, delays operation and is associated with various complications, and it is not supported by this study.

Monahan TS, Shrikhande GV, Pomposelli FB et al (2005) Preoperative cardiac evaluation does not improve or predict perioperative or late survival in asymptomatic diabetic patients undergoing elective infrainguinal arterial reconstruction. *Journal of Vascular Surgery* **41**(1): 38–45; discussion 45

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY



Statins reduce cardiac risk in non-cardiac vascular surgery

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓

1 Considerable cardiac morbidity and mortality results from non-cardiac surgery, and despite perioperative advances, certain techniques, including vascular surgery, still have a high risk attached to them.

2 Statins are known to reduce cardiac risk in certain cases, but their effect in the prevention of perioperative cardiac complications in patients undergoing non-cardiac vascular surgery has not been fully investigated.

3 This retrospective study examined the characteristics and medical history of patients visiting a tertiary referral centre for lower extremity revascularisation, aortic surgery or carotid endarterectomy.

4 Complications were noted in 52 of the 562 hospitalisations with statins given (9.9%) and 105 of the 637 hospitalisations without statins given (16.5%).

5 After adjusting for predictors of perioperative complications, statins were associated with a significant risk reduction (odds ratio, 0.52; 95% confidence interval, 0.35–0.77%; $P=0.001$).

6 These data, the authors suggest, provide impetus for a prospective evaluation of the effectiveness of statins in this role.

O'Neil-Callahan K, Katsimaglis G, Tepper MR et al (2005) Statins decrease perioperative cardiac complications in patients undergoing noncardiac vascular surgery: the Statins for Risk Reduction in Surgery (StaRRS) study. *Journal of the American College of Cardiology* **45**(3): 336–42

EUROPEAN JOURNAL OF VASCULAR AND ENDOVASCULAR SURGERY

Asymptomatic PAD CV risk varies with ABI

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- 1 The use of non-invasively detected peripheral artery disease (PAD) as a prognostic marker had not previously been evaluated in a population-based study of people with diabetes.
- 2 The association between ankle-brachial index (ABI) and cardiac events was examined in this study; the prevalence of asymptomatic PAD in the sample (68-year-old men; n=474) was also assessed.
- 3 An ABI less than 0.9 in either leg was used to define PAD, while a fasting blood glucose value of at least 6.1 mmol/l, or a history of diabetes, was used to define diabetes.
- 4 PAD was present in 29% of men with diabetes and 12% of men without diabetes ($p=0.003$).
- 5 The incidence of cardiac events was 22.9/1000 person-years in men without PAD or diabetes, while for diabetes cases it was 28.4/1000 person-years ($P=0.469$) in men without a PDA-defining ABI and 102/1000 person years ($P<0.001$) in men with a PDA-defining ABI.
- 6 Cardiovascular (CV) risk differed similarly between men with and without a PDA-defining ABI.
- 7 It remains to be determined whether patients with isolated small vessel disease (who have a normal ABI) are similarly predisposed to cardiac events.

Ogren M, Hedblad B, Engstrom G et al (2005) Prevalence and prognostic significance of asymptomatic peripheral arterial disease in 68-year-old men with diabetes. Results from the population study 'Men born in 1914' from Malmö, Sweden. *European Journal of Vascular and Endovascular Surgery* **29**(2): 182-9

ARCHIVES OF INTERNAL MEDICINE

Pulse oximetry and ABI are comparable

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- 1 Early detection of lower extremity arterial disease (LEAD) is desirable, but some screening methods are too expensive or not sensitive enough.
- 2 Accuracy was compared between ankle-brachial index (ABI), pulse oximetry and a combination of both in 57 patients with no symptoms of LEAD.
- 3 Waveform analysis was used to diagnose LEAD, and the screening methods were assessed against this.
- 4 Sensitivities (with 95% confidence intervals [CIs]) for pulse oximetry, ABI and the combination were 77% (61-88%), 63% (46-77%) and 86% (71-94%), respectively.
- 5 The respective specificities (with 95% CIs) were 97% (91-99%), 97% (91-99%) and 92% (84-96%).
- 6 Pulse oximetry may, therefore, merit consideration in screening.

Parameswaran GI, Brand K, Dolan J (2005) Pulse oximetry as a potential screening tool for lower extremity arterial disease in asymptomatic patients with diabetes mellitus. *Archives of Internal Medicine* **165**(4): 442-6

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

Safety and efficacy of stent-supported angioplasty

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- 1 Percutaneous angioplasty for critical limb ischaemia (CLI) and lifestyle-limiting claudication (LLC) is suboptimal, while tibial bypass is associated with high procedural mortality and morbidity levels.

NEW ENGLAND JOURNAL OF MEDICINE

Potential modifiable risk factors for neuropathy

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

- 1 Identifying modifiable risk factors for neuropathy is vital, as glycaemic control is the only known treatment.
- 2 This study (n=1172) assessed risk factors for distal symmetric neuropathy in patients with type 1 diabetes from the European Diabetes Prospective Complications Study.
- 3 Neuropathy was evaluated at baseline and a mean follow-up of 7.3 years; various clinical measurements were taken at a central laboratory.
- 4 After adjustment for HbA_{1c} and diabetes duration, several risk factors remained significantly associated with neuropathy, including a raised triglyceride level or body mass index and smoking (all $P<0.001$).
- 5 These results suggest a need for trials to confirm the efficacy of addressing modifiable risk factors.

Tesfaye S, Chaturvedi N, Eaton SE et al (2005) Vascular risk factors and diabetic neuropathy. *New England Journal of Medicine* **352**(4): 341-50

- 2 This study aimed to determine the safety and efficacy of primary below-knee stent-supported angioplasty in 82 patients (92 limbs) with either CLI or severe LLC.
- 3 There was a technical success of 94% for new lesions, there were no major adverse events (death, myocardial infarction, major bleeding, need for revascularisation or major unplanned amputation) and ankle-brachial indices increased for all groups.
- 4 The minimal major adverse events make this a promising therapy.

Feiring AJ, Wesolowski AA, Lade S (2004) Primary stent-supported angioplasty for treatment of below-knee critical limb ischemia and severe claudication: early and one-year outcomes. *Journal of the American College of Cardiology* **44**(12): 2307-14

‘Early detection of lower extremity arterial disease (LEAD) is desirable, but some screening methods are too expensive or not sensitive enough.’

‘The minimal major adverse events make [below-knee stent-supported angioplasty] a promising therapy.’