



Management of risk factors: a survey of New Zealand vascular surgeons

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Abstract

Aim Patients with peripheral occlusive arterial disease (POAD) suffer significant morbidity and mortality from cardiovascular events that may be reduced by appropriate risk factor management. The aim of this study was to document the opinion of New Zealand vascular surgeons regarding risk factor management in patients with POAD.

Methods A questionnaire was emailed to 42 New Zealand vascular surgeons. Surgeons were asked if they checked risk factors in patients with POAD and who they thought should manage these risk factors. The survey was then re-emailed to non-responders after 3 weeks and subsequently posted to the remaining non-responders with a reply paid envelope after a further 3 weeks.

Results The overall response rate was 83% (35/42). Thirty-four of the 35 surgeons (97%) stated that they routinely asked smoking history, 69% monitored blood pressure, 74% checked cholesterol level, 57% checked blood glucose level, and none checked homocysteine level, although 43% consider hyperhomocysteinaemia to be a risk factor for atherosclerosis. Vascular surgeons considered general practitioners should play a pivotal role in the management of cardiovascular risk factors. A variable proportion of vascular surgeons thought that the vascular team should also be involved in the management of smoking (46%), hyperlipidaemia (20%), hyperhomocysteinaemia (23%), and prescription of antiplatelet therapy (69%).

Conclusions Modification of risk factors in patients with POAD is imperative but opinion on who is responsible for risk factor management lacks consensus. It is more important that risk factor modification occurs than who oversees such intervention.

Peripheral occlusive arterial disease (POAD) has been estimated to affect between 5% and 20% of the population depending on age and symptoms.^{1,2} No data are available for the scale of the problem in New Zealand (NZ), but the prevalence is probably similar to other Western countries. For patients with intermittent claudication (IC), the risk of limb loss is relatively small (1–2% a year), however patients with POAD are at significant risk of cardiovascular events, and patients with IC have 2–4 times greater mortality than patients without POAD.³ Best medical therapy (BMT) regarding risk factor modification can make a significant difference to outcome in patients with atherosclerotic disease.⁴

Despite having similar risks of mortality and morbidity, studies had shown that patients with POAD often received less risk-factor modification than patients with coronary disease.^{5,6} Risk factors are often reported to be poorly documented and poorly treated in both primary and tertiary care.^{7,8}

There is debate regarding who should be responsible for risk factor management in patients with POAD. Some vascular surgeons suggest that they are well placed to provide such a service while physicians disagree with this sentiment.^{9,10} In recent years, the subspeciality of vascular medicine or angiology has emerged in Europe and North America. These vascular physicians focus on providing medical therapy for patients with POAD which usually revolves around risk factor management.

The aim of this study was to document the opinion of New Zealand vascular surgeons regarding risk factor management in patients with POAD.

Methods

A list of practicing vascular surgeons and their contact details was obtained from the New Zealand Vascular Society (NZVS). In February 2005, a questionnaire (Appendix 1) was emailed to 42 vascular surgeons. Surgeons were also given the option of printing the survey and returning it by post. If no email address was available from the NZVS, District Health Boards were contacted regarding this information and, if no email address was registered, a copy of the survey was faxed to the surgeon. If no response was received after 3 weeks, then a second electronic survey was emailed. Three weeks following the second email, a postal survey with a reply-paid envelope was sent to non-responders.

The survey consisted of seven sections of questions with a tick-box or yes/no format. Surgeons were asked to identify the modifiable risk factors they consider as significant for peripheral vascular disease and questioned if they routinely check these risk factors. Surgeons were offered a choice to indicate which speciality they considered most appropriate for managing each risk factor for vascular disease. The surgeons were advised that they could tick as many boxes as they thought appropriate for each question.

Responding surgeons were also provided with a space on the questionnaire to give open comments.

Results

Replies were received from 35 of the 42 New Zealand vascular surgeons (83%). Sixteen (46%) of the responses were returned by email. Eleven (31%) of the replies were received within the first 3 weeks, 8 (23%) were received after the second email, and 16 (46%) were received after the postal survey.

The responses to questions relating to which risk factors were considered important and which risk factors were routinely checked by the vascular team are shown in Figures 1 and 2. No vascular surgeons check homocysteine level but 15 (43%) consider hyperhomocysteinaemia to be a risk factor for vascular disease.

Table 1. Who do you think should initiate therapy (for each risk factor)? (%)

| Risk factor (%) | No therapy | Vascular team | General practitioner | Physician | Others | N/A |
|----------------------|------------|---------------|----------------------|-----------|--------|-----|
| Smoking | 0 | 46 | 71 | N/A | 20 | |
| Hypertension | 0 | 3 | 94 | 26 | 6 | |
| Hyperlipidaemia | 0 | 20 | 89 | 23 | 6 | |
| Diabetes mellitus | 0 | 0 | 89 | 37 | 9 | 3 |
| Hyperhomocystinaemia | 6 | 23 | 29 | 37 | 3 | 14 |
| Anitiplaetlet | 0 | 69 | 51 | N/A | 3 | |

The majority of vascular surgeons believed that GPs should play a central role in the management of risk factors but many also believe that the vascular team and/or specialist physicians should play a role in risk factor modification. Opinion regarding who should initiate treatment of risk factors is summarised in Table 1.

Figure 1. What do you consider to be significant modifiable risk factors for peripheral vascular disease?

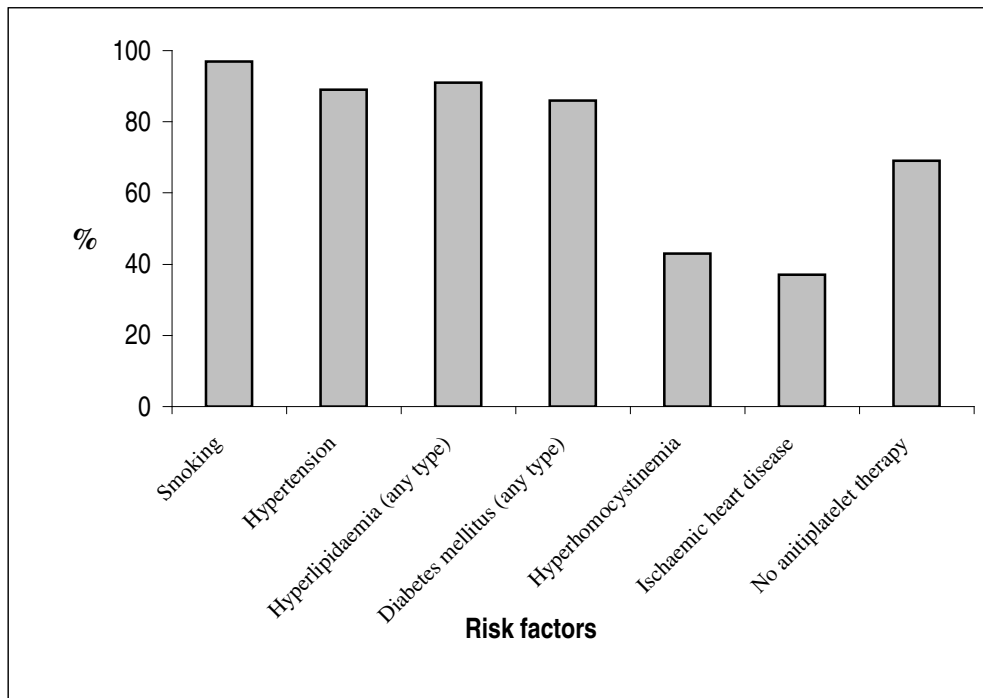
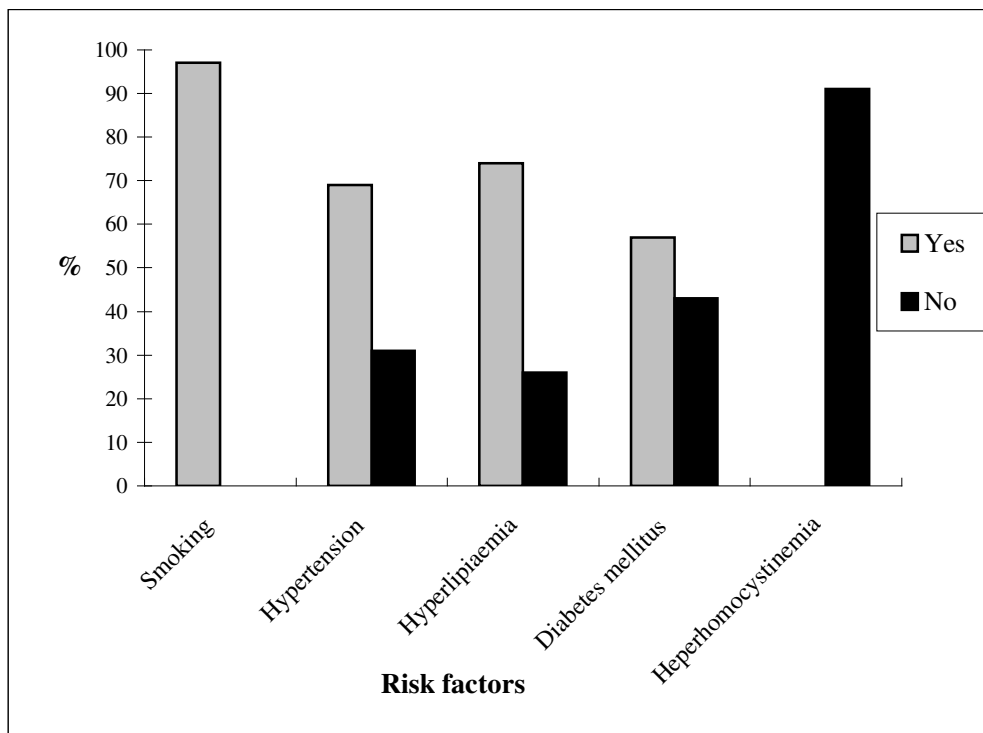


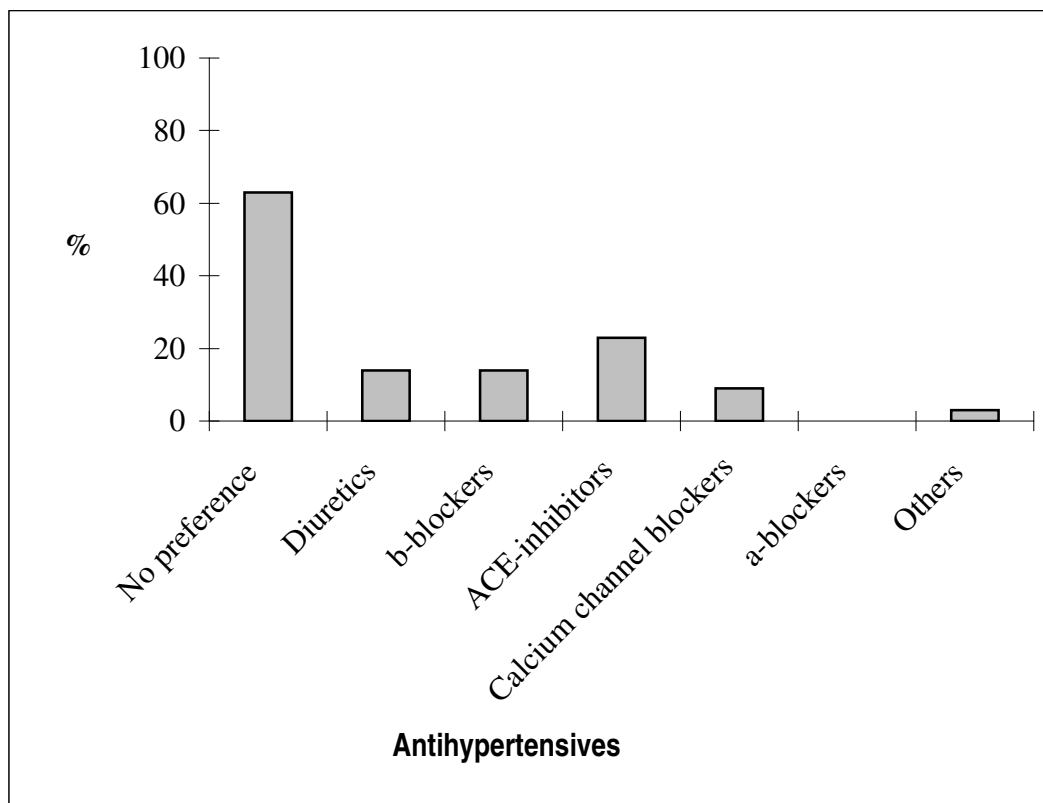
Figure 2. Do you routinely check (each of these risk factors)?



With regard to smoking cessation programmes, only 18 (51%) of the vascular surgeons had dedicated smoking cessation facilities in their hospital.

The vascular surgeons were asked to choose one or more of the antihypertensives that they prefer to be used for peripheral vascular disease patients. The results are shown in Figure 3. The majority of surgeons (63%) did not express a preference.

Figure 3. Do you have a preference for which antihypertensive therapy is initiated?



Aspirin was the antiplatelet therapy of choice for 29 (83%) of the vascular surgeons and the preferred dose varied between 50 mg and 300 mg a day, with most recommending a dose of 150 mg or less.

Some vascular surgeons commented that “ideal practice” is often difficult to implement in a busy outpatient setting, and that general practitioners (GP) may be better placed to review treatments for side-effects and interactions. Surgeons also commented that GPs are better able to monitor progress and coordinate referral to specialist physicians where necessary. Although access to GPs is generally easier than to vascular surgeons, some surgeons commented that in lower socioeconomic areas patients often see a different GP at each attendance and therefore it may be more appropriate to monitor risk factor modification as a hospital outpatient. Many surgeons stated that they consider risk factor management to be a multidisciplinary problem.

Discussion

This study showed that New Zealand vascular surgeons generally recognise the significance of modifiable risk factors in patients with POAD but frequently do not test for the presence of these factors in the outpatient setting. Many surgeons suggested in the survey that, due to lack of time during outpatient clinics, GPs should conduct risk factor assessment prior to consultation with a vascular specialist. A majority of vascular surgeons in New Zealand also consider that GPs should be pivotal in risk factor management.

Although the current survey had a small number of subjects (n=42), the high response rate of 83% is probably a good reflection of current practice in New Zealand. It may also reflect the interest of New Zealand vascular surgeons in this complex topic. The initial response rate to the electronic surveys was relatively low at 26% after the first email and 45% after the second email. This response rate is, however, similar to other studies using electronic surveys.^{11,12}

By using electronic surveys alone there is a risk of bias in selecting the group who access emails frequently and are possibly more computer literate. We compensated for this potential bias by sending out postal surveys to outstanding replies after the second email. The design of the questionnaire was deliberately kept simple to maximise the response rate but did restrict respondents regarding the scope of their answers. A section for "open" comments was included in an attempt to compensate for this potential bias, and many of these comments have been included in this manuscript. This study assumed that all current New Zealand vascular surgeons are members of the NZVS and therefore may have missed a small number of surgeons who treat patients with POAD in New Zealand.

Smoking has long been established as a strong risk factor for atherosclerosis,³ as agreed by 97% of vascular surgeons in our study. Smoking cessation can significantly reduce this risk⁴ but it has been reported that simple advice to quit smoking only has a small effect on cessation rate.¹³ Studies on smoking cessation clinics showed that individualised treatment using counselling and nicotine replacement therapies produced a higher rate of abstinence.¹⁴ In our study, only 51% of the vascular surgeons have dedicated, hospital-based smoking cessation clinics which probably reflects a lack of resources.

Hypertension is a major risk factor for atherosclerotic disease, and the risk of morbidity and mortality can be reduced by lowering blood pressure. Most (89%) of the vascular surgeons in our study recognised this risk factor but the majority (63%) had no preference regarding the choice of antihypertensive medication used in their patients.

The Heart Outcomes Prevention Evaluation (HOPE) study demonstrated the benefit of ACE-inhibitors with regard to reduction in cardiovascular risk regardless of the patients blood pressure.¹⁷ ACE-inhibitors were the preferred antihypertensive for 23% of vascular surgeons in our study and may reflect recent publication in vascular surgical literature. It is important to monitor renal function in patients prescribed ACE-inhibitors. The majority of surgeons considered that GPs should manage hypertension while only 3% thought that this should be the responsibility of the vascular team.

Two vascular surgeons commented that β -blockers should not be used in patients with POAD. Although β -blockers may exacerbate symptoms of POAD they are not absolutely contraindicated and in some patient subgroups the cardiac benefit of β -blockade may dictate prescription of this class of medication.^{19,20}

Dyslipidaemias lead to increased risk of cardiovascular events and prescription of lipid lowering therapy has been shown reduce this risk.^{21–24} The recently published Heart Protection Study has provided the strongest evidence to date of the benefit of lipid lowering therapy in patients with POAD. It reported that statins were of benefit to patients with POAD, even in those patients with a “normal” cholesterol level. Guidelines for the prescription of statins in New Zealand may require updating to allow this benefit to a potentially vulnerable group of patients with POAD. Twenty percent of those responding thought that the vascular team should manage lipid lowering therapy but again, the majority nominated the GP.

Diabetes mellitus is another major risk factor for POAD and may increase the risk of progression from claudication to critical limb ischaemia.²⁶ It has been reported that intensive control of blood glucose may decrease risk of microvascular complications, but not macrovascular disease.²⁷ Nearly 60% of vascular surgeons stated that they check for diabetes mellitus but the vast majority thought that diabetes is best managed by GPs or physicians with an interest in this disease.

An increased level of serum homocysteine is an independent risk factor for atherosclerosis. Studies have reported that mild hyperhomocysteinaemia occurs in 5–7% of the general population and in 27–50% of patients with symptomatic atherosclerotic disease.²⁸ Only 43% of the vascular surgeons in our study stated that they considered hyperhomocysteinaemia to be a significant risk factor, and none of them check serum homocysteine levels in their patients. This latter result may reflect the current lack evidence that cardiovascular risk can be reduced by lowering the homocysteine level.

Antiplatelet therapy has been shown to significantly reduce cardiovascular events in “at risk” patients. No optimal dose of aspirin has been determined but a low dose (75–150 mg/day) is suggested by the Antiplatelet Trialists’ Collaboration.²⁹ These recommendations were acknowledged by most of the vascular surgeons in our study. The recommendation for low-dose aspirin is based on maximising the benefit of the antiplatelet effect of aspirin while minimising gastrointestinal side effects.

The CAPRIE Trial found that the thienopyridine, clopidogrel is slightly more effective than aspirin at reducing recurrent ischaemic events³⁰ but given the cost involved, it is generally accepted that aspirin is the first-line antiplatelet agent except in special circumstances. The concept of aspirin resistance has recently questioned whether patients are adequately protected from ischaemic events by aspirin monotherapy but much more work is needed on this subject before a change in current practice can be suggested.³¹

European vascular surgeons have argued that they should manage all aspects of POAD, including risk factors for atherosclerosis, since they are aware of the pathogenesis of atherosclerosis as well as the molecular dysfunction and the haemodynamic consequences of this disease. The additional task of risk factor management and time involved is suggested to be minor.⁹

From the angiologist point of view, patients with POAD should be managed by a clinician trained in several different fields of medicine, because of the (often multiple) comorbidities present in these patients.¹⁰

The New Zealand vascular surgeons in our study expressed the opinion that it can be difficult to take on this extra workload given the limited time available in surgical outpatient clinics. This is, however, an opportunity lost with regard to screening for risk factors. GPs may be better placed to review the success or side effects of treatments but may also be less aware of the importance of treating risk factors aggressively.

With an aging population and the increasing expectations of the general public regarding the provision of healthcare, risk-factor modification and patient education is already at the forefront of the management of patients with POAD. Regardless of who is the responsible clinician, it is important to ensure best medical therapy for these patients and this will frequently require a multidisciplinary approach.

In summary, risk-factor modification for patients with POAD is an essential facet of their medical management and New Zealand vascular surgeons generally recognise the importance of these risk factors. There is currently lack of consensus regarding who is best placed to implement or oversee risk factor modification for patients with POAD. Our study suggests that the opinion of New Zealand vascular surgeons differs from vascular surgeons in Europe. Improving doctor and patient education will undoubtedly influence this consensus.

Whatever the responsible clinician calls himself/herself, our current focus should be on treating these risk factors by working together and seeking expert advice when necessary.

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Appendix 1. The questionnaire

Management of Modifiable Risk Factors for Peripheral Vascular Disease

For all questions, please select the applicable box or boxes.

1. What do you consider to be significant modifiable risk factors for peripheral vascular disease? Smoking

Hypertension

Hyperlipidaemia (any type)

Diabetes mellitus (any type)

Hyperhomocystinaemia

Ischaemic heart disease

No antiplatelet therapy

2. Do you routinely ask patients about their smoking history? Yes No

For patients who smoke, who do you think should initiate smoking cessation therapy?

Therapy not necessary

Vascular team

GP

Others

Does your hospital have smoking cessation facilities? Yes No

3. Do you or your vascular nurse routinely check blood pressure in patients with peripheral vascular disease? Yes No

For patients with hypertension, who do you think should initiate anti-hypertensive therapy?

Therapy not necessary

Vascular team

GP

Cardiologist Others

Do you have a preference for which antihypertensive therapy is initiated?

No preference

Diuretics

β -blockers ACE-inhibitors

Calcium channel blockers α -blockers Others

4. Do you routinely check your patients' serum cholesterol level? Yes No

For patients with hyperlipidaemia, who do you think should initiate lipid lowering therapy?

Therapy not necessary

Vascular team

GP

Lipid Clinic Others

5. Do you routinely check your patients' blood glucose for diagnosing diabetes mellitus? Yes No

For patients with diabetes mellitus, who do you think should initiate and monitor diabetic therapy?

Therapy not necessary Vascular team GP Endocrinologist Others

6. Do you routinely check your patients' serum homocysteine level?

Yes No

For patients with hyperhomocysteinaemia, who do you think should initiate therapy?

Therapy not necessary Vascular team GP Physicians Others

7. Who do you think should initiate antiplatelet therapy?

Therapy not necessary Vascular team GP Others

Which antiplatelet would you use, and at what dose? (*Please specify*)

8. Any other comments?

