

Are National Cardiac Guidelines being Applied by Vascular Surgeons?

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Introduction. National cardiac guidelines recommend that patients with intermittent claudication should be managed in the same way as those with established coronary heart disease. This survey aimed to determine the attitudes of vascular consultants to risk factor management in new patients attending their out-patient clinic.

Methods. An anonymous postal questionnaire was sent to all 394 members of the Vascular Surgical Society in June 2002. Questions were asked about the following measures: serum cholesterol levels, the presence of diabetes, antiplatelet therapy, exercise regimens, blood pressure, thrombophilia, smoking and the availability of local guidelines and expertise.

Results. A response rate of 65% was obtained. Most (85%) consultants would measure a random cholesterol, but 34% would only treat claudicants if the cholesterol was greater than 5.5 mmol/l. Furthermore, 23% would inappropriately use diet alone as initial cholesterol lowering therapy. Over a quarter of consultants would not screen for diabetes or measure blood pressure. Nearly all (99%) would recommend aspirin and 66% would recommend nicotine replacement therapy. Only 55% had access to a smoking cessation clinic, and 34% to a formal exercise program. The majority (56%) did not have local risk factor management guidelines, only 16% had access to a vascular physician, and 65% would prefer to have this expertise available for difficult cases.

Discussion. Management of major risk factors was found to be sub-optimal. Thus guidelines for the prevention of coronary disease in clinical practice are not being applied to claudicants.

Key Words: Intermittent claudication; Risk factors; Cholesterol; Smoking; Antiplatelet therapy; Exercise.

Introduction

Intermittent claudication affects between 1.7%¹ and 7.1%² of the population over 55 years of age. Housley, in a 1988 leading article summarized the treatment of claudication as merely 'Stop smoking and keep walking'.³ Since then the major risk factors for both cardiac and peripheral arterial disease (PAD) have become well established, and treatment strategies devised. The Joint British recommendations on prevention of coronary heart disease in clinical practice published in 1998 stated that patients with PAD should be managed in the same way as those with established coronary heart disease (CHD).⁴ These guidelines state that patients with CHD or other major atherosclerotic disease such as claudication should: receive lifestyle intervention in order to discontinue smoking and increase aerobic exercise, be prescribed aspirin and screened for the presence of diabetes by performing a fasting blood glucose.

Rigorous control of blood pressure (BP) and lipids is also recommended with the following targets: BP less than 140 mmHg systolic and less than 85 mmHg diastolic and total cholesterol less than 5.0 mmol/l. Apart from this consensus document, there are no national guidelines in the UK, which deal specifically with risk factor modification in these patients. In 1998, the Scottish Intercollegiate Guidelines Network also published a document on 'Drug Therapy for Peripheral Vascular Disease', which recommend that all patients should be prescribed aspirin.⁵

Unfortunately, despite these recommendations, current evidence suggests that risk factor management in claudicants in patients with claudication in the primary care setting is sub-optimal.^{6,7} It is apparent that the national guidelines for the prevention of coronary disease in clinical practice are not being applied to claudicants in this setting. Furthermore a recent survey of 337 general practitioners found that 18% considered risk factor modification to be primary and not secondary.⁶ Thus, currently the main opportunity for these patients to be appropriately managed is at their hospital visit. What is unclear is how well

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vascular surgeons manage these risk factors or, whether, they assume that they are being investigated and treated in primary care. The aim of this study was to determine, by means of a postal questionnaire, the attitudes and practice of vascular consultants to risk factor management in new patients with intermittent claudication attending the out-patient clinic.

Materials and Methods

A postal survey questionnaire was sent to all 394 members of the Vascular Surgical Society of Great Britain and Ireland in June 2002. Simple tick box style questions were asked about the following major risk factors: dyslipidaemia serum cholesterol, presence of diabetes, prescribing of antiplatelet therapy, exercise regimens, elevated BP, and smoking (see Appendix A). The measurement of the other less well recognized risk factors thrombophilia and hyperhomocysteine were also assessed. Consultants were also asked their own age range, type of hospital in which they practised (District General or Teaching), the availability of local guidelines and expertise when required. The questionnaire was anonymous and thus no reminders could be sent.

Replies were received from 256 consultants, resulting in a response rate of 65%. The figures given below are valid percentages, which take into account missing responses to individual questions in the completed questionnaires. Unless otherwise stated, this accounted for less than 10% of the responders. Comparison between types of hospital and consultant age were performed using chi-squared test with Yates correction.

Results

Major risk factors: lack of prescribing of antiplatelet therapy, diabetes, dyslipidaemia, smoking, lack of exercise and elevated BP

A response rate of 65% was obtained. The number of consultants that would screen and treat these risk factors is shown in Table 1. If we first consider antiplatelet therapy, in this survey 98% of consultant vascular surgeons would routinely recommend aspirin therapy for patients with intermittent claudication. The majority, 82% would prescribe 75 mg, 12% would recommend 150 mg, 5% 300 mg and 1% would use a range of doses. If aspirin were contraindicated, 94% would recommend clopidogrel, another platelet agent. The remaining 6% (14)

consultants would recommend dipyridamole ($n = 12$), aspirin and lanzoprazole ($n = 1$) and nothing ($n = 2$).

Over a quarter of consultants would not routinely screen for diabetes or measure BP (Table 1). The cholesterol levels at which treatment would be recommended is shown in Table 2. The initial cholesterol lowering treatment would be diet alone in 23%, diet and lipid-lowering drugs in 56% and lipid lowering drugs alone in 17%. A further 4% used a combination of these treatment options. Fourteen percent (33) of consultants exercised an age limit for prescribing statins. Thirty-one of these consultants stated their age limit for statin therapy to be: over 60, $n = 1$; over 70, $n = 3$; 75 and over $n = 10$; 80 and over, $n = 16$, and 90 and over $n = 1$. There was also considerable variation in the levels of triglycerides that consultants would treat ranging from 1.5 to 6 mmol/l. In addition, 23% of consultants said that they were unsure what level to treat or would refer for specialist advice.

Twenty-seven percent of consultant vascular surgeons would not routinely measure a systolic and diastolic BP in patients with claudication attending their clinic. This measurement was more likely to be performed by the older consultants. Nineteen percent of responders did not complete the section regarding the level of BP at which they would recommend the GP to recheck it. For those that did complete this question, there were considerable variations in response (Fig. 1).

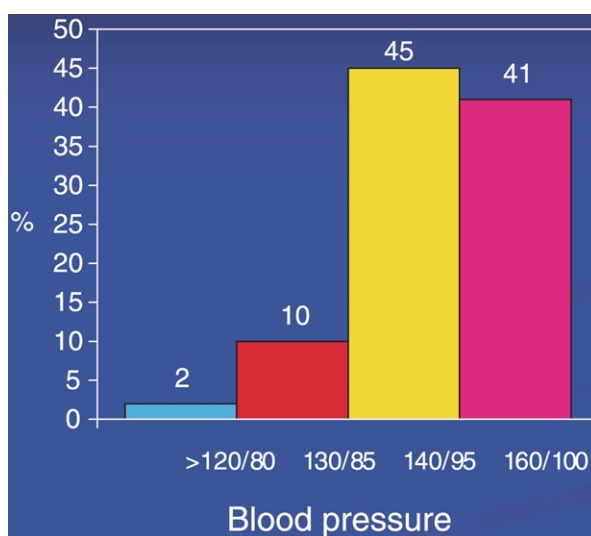


Fig. 1. Blood pressure at which consultant would recommend GP to monitor.

Table 1. Screening and management of secondary risk factors.

Risk factor	Screening/management	Absolute/total responders for each question (percentage of responders*)
Antiplatelet therapy	Routinely prescribe aspirin	246/251 (98)
Diabetes	Routinely measure random glucose	165/250 (66)
	Ask GPs to measure fasting glucose	74/225 (33)
	Perform none of the above	65/250 (26)
Dyslipidaemia	Measure fasting triglyceride	147/191 (77)#
	Measure serum cholesterol	240/284 (85)
Blood pressure	Routinely measure	182/249 (73)
Exercise	Access to formal exercise program	86/253 (34)
Smoking	Recommend patient to stop	242/244 (99)
	Access to a non-smoking clinic	137/249 (55)
	Recommend nicotine replacement therapy	155/235 (66)

*Values in parenthesis are valid percentages, which take into account missing responses to individual questions in the completed questionnaires (this was less than 10% apart from #).

Homocysteine and thrombophilia

Many consultants stated that these investigations were not locally available. Homocysteine levels would be checked by 28 and 14% would screen for thrombophilia in younger patients. For those surgeons who would perform a thrombophilia screen, only 16% would do so in patients older than 55 years.

Local guidelines and access to a vascular physician

In response to the question ‘In cases where risk factor management is not straight forward would you wish the involvement of a vascular physician’, 65% of consultant surgeons answered yes. Only 16% of consultants had access to a ‘vascular physician’ which in some cases was considered to be the local cardiologist. Local guidelines on the management of risk factors in patients with intermittent claudication were available to 44% of consultant vascular surgeons.

Consultants’ age and hospital type

Sixty percent of consultants (135) worked in district general and 40% (91) in teaching hospitals, 12% (30) did not fill in this question. Responses to the questionnaire were analysed with respect to place of work and age, less than or older than 50 (Tables 3 and 4). There were no statistical differences in age range in

those who responded and worked in a District General or Teaching Hospital.

Discussion

Patients with intermittent claudication have as high a risk of developing or dying from CHD as many patients surviving their first myocardial infarction.⁴ Yet, this survey has revealed deficiencies in the management of many of the risk factors in patients with intermittent claudication undertaken by consultant vascular surgeons. This includes many of the better known and understood risk factors—dyslipidaemia, diabetes, smoking, lack of exercise and hypertension. Although we are unable to comment on the 35% of consultants who did not reply a response rate of 65% is acceptable and we believe does allow us to draw conclusions with regards to practice within the UK.

The importance of risk factor management in patients with claudication has become increasingly recognized and has been the subject of a number of recent reviews.^{8,9} One reason why risk factor management is suboptimal may due to the lack of mortality studies in this area, although this is now being addressed. It may also be due to a mistaken assumption by vascular surgeons that risk factor management is being performed by primary care.⁶ A number of studies have shown that risk factor management in new patients attending the clinic is sub-optimal.^{6,10} Alternatively, there may be a conceptual problem with applying national cardiac guidelines to what are perceived to be non-cardiac patients. This may also apply to other high-risk groups such as patients with cerebrovascular disease. In a recent survey, we have shown that 18% of general practitioners consider risk factor management to constitute primary and not secondary prevention in claudicants.⁶

Table 2. Level of cholesterol at which vascular consultants initiate treatment.

What level of cholesterol would you treat?	Number n = 233 (%)
< 5 mmol/l	20 (9)
> 5 mmol/l	104 (46)
> 5.5 mmol/l	65 (28)
> 6 mmol/l	16 (6)
All levels	28 (12)

Table 3. Screening for diabetes, hyperlipidaemia, hypertension and nicotine replacement therapy in claudicants: impact of consultant age.

	Yes <50 years (n = 143)	Yes, >50 years (n = 86)	P value chi-squared
Routinely measure random glucose	100 (70%)	52 (61%)	0.087
Ask general practitioners to measure fasting glucose	42 (29%)	25 (29%)	0.38
Routinely measure lipid values	123 (86%)	68 (79%)	0.067
Routinely measure blood pressure	100 (70%)	68 (79%)	0.047*
Recommend nicotine replacement therapy	99 (69%)	44 (51%)	0.004**

* $p < 0.05$, ** $p < 0.01$, chi-squared with Yates correction. Values in parenthesis represent percentage of consultants who would perform relevant investigation.

The Joint British Recommendations on prevention of CHD⁴ has stated that what evidence there is available supports the treatment of patients with intermittent claudication with statins with the aim of reducing the serum cholesterol to less than 5 mmol/l.^{11–13} It is thus disappointing that 34% of consultant vascular surgeons would only treat claudicants if the cholesterol was greater than 5.5 mmol/l. The use of diet alone as initial cholesterol lowering therapy by 23% of surgeons is inappropriate as many papers have shown that it is only possible to lower cholesterol on average by about 10%, unless the patient is very obese and loses a significant amount of weight.¹⁴ Furthermore, with levels at or above 6 mmol/l no diet will achieve acceptable cholesterol levels. The effect of statin therapy in patients with isolated PAD has only recently been addressed in the MRC Heart Protection study.¹⁵ Published 1 month following the initiation of this questionnaire, this study has demonstrated that treatment with simvastatin 40 mg daily resulted in a 25% reduction in the rates of myocardial infarction, stroke and of revascularisation in patients with PAD irrespective of the initial cholesterol level. These data have been widely available over the past 6 months and account for the fact that 11% of vascular surgeons in this survey would treat all patients irrespective of their cholesterol level.

In the Framingham Trial, the age-adjusted risk ratio for intermittent claudication in diabetic patients compared to controls was five times greater for men and four times greater for women.¹⁶ Furthermore

although diabetic patients make up about 20% of the PAD population, 80% of amputations are in this group.¹⁷ The Joint British Recommendations on prevention of CHD⁴ recommends that all patients with PAD should be screened for the presence of diabetes. Undiagnosed diabetes is common and occurs in up to 12% of new claudicants attending the surgical outpatient clinic.⁶ It is thus disappointing that 26% of consultant vascular surgeons did not screen for diabetes. This compares to 23% of GPs who in a recent survey would also not screen for diabetes in patients with claudication.⁶

The Joint British Recommendations on prevention of CHD⁴ recommends that all patients with PAD receive lifestyle intervention in order to discontinue smoking and increase aerobic exercise. Cigarette smoking is acknowledged to be 'the single most powerful risk factor associated with the aetiology and clinical progression of peripheral arterial disease'.⁸ The excess risk of CV disease diminishes within 4–6 years after smoking cessation unlike the increased cancer risk on.¹⁸ A Cochrane review of 108 randomised controlled trials has found that nicotine replacement therapy is effective as part of a strategy to promote smoking cessation and increase quit rates approximately 1.5–2-fold.¹⁹ The effect of nicotine replacement therapy is largely independent of any additional support. It is perhaps surprising that only 64% of consultants would recommend nicotine replacement therapy to claudicants. This figure was lower for the older consultants and those working in district

Table 4. Screening for risk factors and treatment: impact of type of hospital.

	Yes, District N = 134	Yes, Teaching N = 90	P value chi-squared
Routinely measure random glucose	96 (72%)	54 (60%)	0.052
Ask general practitioners to measure fasting glucose	38 (28%)	28 (31%)	0.348
Routinely measure lipid values	118 (88%)	69 (77%)	0.012*
Routinely measure blood pressure	100 (75%)	67 (74%)	0.36
Recommend nicotine replacement therapy	79 (59%)	62 (68%)	0.023*
Access to anti-smoking clinic	68 (51%)	58 (64%)	0.011*
Access to a vascular physician	15 (11%)	22 (25%)	0.007*
Local guidelines available	50 (37%)	51 (58%)	0.003*
Access to an exercise program	45 (34%)	33 (37%)	0.29

* $p < 0.05$, ** $p < 0.01$, chi-squared with Yates correction.

general hospitals. Supervised exercise has been clearly shown to be of benefit, not only in terms of secondary prevention but also in its ability to increase patients' walking distance in structured programs.²⁰ It is thus unfortunate that 67% of vascular surgeons did not have access to a formal exercise program.

Screening for hyperhomocysteine and thrombophilia are clearly not routine investigation for most vascular surgeons and are only performed by 28 and 11%, respectively. Hyperhomocysteinaemia is an independent risk factor for atherosclerosis and may be present in 50–60% of patients with PAD.^{21,22} Thrombophilia abnormalities may occur in 30–60% of patients with peripheral vascular disease, and are increasingly recognized in patients who have failed arterial intervention due to thrombosis.^{23,24} However, there is currently no convincing evidence that treatment in patients who are not undergoing interventions will alter the natural history of the disease.²⁵

This survey has revealed a lack of local guidelines and implies that there may be a lack of resources available for antismoking clinics and exercise programs. It has also shown that the majority of vascular surgeons would welcome additional expertise input from vascular physicians for difficult cases. Currently, this help is only available to 16% of consultant vascular surgeons.

Guidelines will soon be produced which specifically address risk factor management of patients with intermittent claudication. However, strategies to ensure their implementation are urgently required both in primary and secondary care.

Acknowledgements

We would like to thank the members of the Vascular Surgical Society of Great Britain and Ireland who completed the questionnaire and Sanofi-Synthelabo for sponsoring the audit.

Appendix A: Questionnaire.

Where do you work?	District general, teaching hospital
What age are you?	<40 40–49 50–59 60+
<i>The following questions concern the management of new patients presenting at your clinic with intermittent claudication</i>	
LIPIDS	
If the patient's lipid values are not known, would you routinely measure them?	YES NO
At what level of cholesterol would you recommend treatment?	<5 mmol/L, >5 mmol/L >5.5 mmol/L, >6 mmol/L, other please give details
For triglyceride measurement would you ask that your patient be fasted?	YES NO
What level of triglyceride would you treat?	
What would be your initial cholesterol lowering treatment?	Diet alone Diet and lipid-lowering drugs Lipid-lowering drugs alone
Do you have an age limit for recommending that a statin is prescribed?	YES NO (if yes, what age?)
DIABETES MELLITUS	
If the patient is not known to be diabetic, do you routinely measure a random blood glucose?	YES NO
Would you ask the general practitioner to measure a fasting blood glucose?	YES NO
Do you check HbA1c levels?	YES NO
EXERCISE	
Do you have access to a formal exercise programme?	YES NO
ANTIPLATELET TREATMENT	
Would you routinely recommend that that aspirin should be prescribed?	YES NO
If you routinely prescribe aspirin, what dose do you select?	75 mg, 150 mg or 300 mg
If aspirin was contradicted/not tolerated, would you recommend clopidogrel?	YES NO
If not, what would you recommend?	
CIGARETTE SMOKING	
Do you advise these patients to stop smoking?	YES NO
Do you recommend nicotine replacement therapy?	YES NO
Do you have access/or run a smoking cessation clinic?	YES NO
HYPERTENSION	
Do you routinely measure patients' arm systolic and diastolic pressure?	YES NO
At what level would you recommend the general practitioner to recheck?	>120/80 >130/85 >140/90 >160/100

THROMBOPHILIA

Do you routinely check for thrombophilia?	YES	NO
Do you have an age limit for checking for thrombophilia? Age of onset of vascular disease	<45	<55 <65 >75
If you do test for thrombophilia what tests do you carry out?		
In young people with vascular disease do you routinely check for hyperhomocysteinemia?	YES	NO

RISK FACTOR MANAGEMENT

In cases where risk factor management is not straightforward would you wish the involvement of a vascular physician?	YES	NO
Do you have access to a vascular physician?	YES	NO
Do you have any local guidelines regarding risk factor management in claudicants?	YES	NO

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Accepted 6 August 2003