

Barns Medical Practice Service Specification: Peripheral Arterial Disease



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Introduction

Peripheral arterial disease (PAD) in the legs, sometimes known as peripheral vascular disease, is caused by atheroma (fatty deposits) in the walls of the arteries leading to insufficient blood flow to the muscles and other tissues. Patients with PAD may have symptoms but can also be asymptomatic. The commonest symptom, intermittent claudication, is characterised by leg pain and weakness brought on by walking, with disappearance of the symptoms following rest. Patients diagnosed as having PAD, including those who are asymptomatic, have an increased risk of mortality, myocardial infarction and stroke. Relative risks are two to three times that of age and sex matched groups without PAD. Management of PAD provides an opportunity for secondary prevention of cardiovascular events. Both lifestyle changes and therapeutic interventions to reduce risk need to be considered.

Patients with claudication can have a significantly reduced quality of life due to their restricted mobility. Careful consideration needs to be given to drug and lifestyle management of claudication so that patients can achieve an optimum quality of life within the limitations of their condition, as a result Barns Medical Practice offers patients with this condition an annual review.

Diagnosis

The characteristic feature in the history of a patient with intermittent claudication is muscle pain brought on by exercise and relieved by rest. The location of the pain is determined by the anatomical level of disease, and is most commonly seen in the calf. This usually reflects disease in the femoropopliteal segment. Disease at aorto-iliac level typically produces pain in the buttock, hip or thigh, and is sometimes associated with erectile dysfunction in males.

In most instances the diagnosis is clear from the clinical history. The clinical examination should include: examination of peripheral pulses: femoral/popliteal/foot and abdominal palpation for aneurysm. The presence of good foot pulses does not exclude PAD and patients with a classic history of claudication will require further investigation. Individuals with a history of intermittent claudication should have an examination of peripheral pulses and palpation of the abdomen for an aortic aneurysm

Ankle brachial pressure index should be measured in all patients suspected of peripheral arterial disease (see appendix 1). Measurement of ankle brachial pressure index should be taken by properly trained practitioners who should endeavour to maintain their skills in this clinical

procedure. There is no strict definition of what constitutes a normal ABPI. In practice, an ABPI of <0.9 is considered to be abnormal. The ABPI of patients with intermittent claudication typically lies between 0.5 and 0.9.

Patients with suspected peripheral arterial disease should be referred to secondary care if: the primary care team is concerned that the symptoms may have an unusual cause, or; risk factors are unable to be managed to recommended targets, or; the patient has symptoms which limit lifestyle and objective signs of arterial disease (clinical signs and low ABPI). Young and otherwise healthy adults, presenting prematurely with claudication, should be referred to exclude entrapment syndromes and other rare disorders. Within secondary care non-invasive imaging modalities should be employed in the first instance for patients with intermittent claudication in whom intervention is being considered. Endovascular and surgical intervention are not recommended for the majority of patients with intermittent claudication. For those with severe disability or deteriorating symptoms, referral to a vascular specialist is recommended.

Administration

Diagnostic codes

#G73 – other peripheral vascular disease

#G734 – peripheral arterial disease

#G73z0 – intermittent claudication

G73zz00 – PVD nos

#Gyu7600 – other specific pvd.

Treatment

When the diagnosis of peripheral arterial disease is made the patient should have a full cardiovascular risk factor assessment carried out. Hypertensive patients with peripheral arterial disease should be treated to reduce their blood pressure in line with the Barns Medical Practice Service Specification for Hypertension.

Making lifestyle changes

There is clear evidence that smoking is associated with increased risks of a wide range of vascular and non-vascular diseases so that smoking cessation is strongly advised for everyone. Health Scotland provides information on smoking cessation strategies which are as relevant to patients with PAD as to others in the community. Barns Medical Practice has a Service Specification on Smoking Cessation which you may consult for further information on this subject

Diet

Increasing the amount of fibre in your diet and reducing your fat intake, particularly saturated fat, should be encouraged where necessary. Lipid lowering therapy with a statin is recommended for patients with peripheral arterial disease and total cholesterol level > 3.5 mmol/l.

Weight

If you're overweight or obese (you have a body mass index (BMI) of 30 or over), you should lose weight, by gradually by reducing your calorie intake and becoming more physically active. To help you achieve changes in your behaviour, you may be referred to a dietician for a personal assessment and tailored advice about diet and physical activity. Currently South Ayrshire Council are working in partnership with NHS Ayrshire and Arran health board to allow us to offer various exercise programmes coordinated via the Citadel leisure centre such as “Weigh to Go” “Invigorate” and “Activity for Health”. See appendix 2.

Antiplatelet therapy

In trials comparing different aspirin regimens in patients with cardiovascular disease, doses of 75-150 mg were as effective as higher doses: overall aspirin produced a 23% reduction in vascular events. The gastro toxic side effects from aspirin appear to be greater with increasing doses. Therefore 75 mg aspirin is the dose of choice and is recommended for patients with symptomatic peripheral arterial disease. Clopidogrel may also be used if aspirin is not suitable. It does not help with the symptoms of PAD but helps prevent blood clots forming in blood vessels. It does this by reducing the stickiness of platelets in the bloodstream.

Regular Review

Once diagnosed and established on treatment Barns Medical Practice offers an annual review with a Health Care Assistant (HCA). At that visit screening of the cardiovascular risk factors will be done and lifestyle advice reinforced. The blood result and screening report will be examined by a trained clinician and any changes to management will be discussed often via a prearranged telephone consultation. The protocol for this visit can be seen in appendix 3.

Resources for Staff and or Patients

NICE Lower limb peripheral arterial disease: diagnosis and management
<https://pathways.nice.org.uk/pathways/lower-limb-peripheral-arterial-disease> online [accessed 7/3/19]

NHS Peripheral Arterial Disease <https://www.nhs.uk/conditions/peripheral-arterial-disease-pad/>
online [assessed 7/3/19]

<http://www.patient.co.uk/doctor/peripheral-arterial-disease> online [accessed 7/3/19]

Practice specific information: See attached appendices

Internet information

U.K. vascular disease charity <http://www.circulationfoundation.org.uk/> online [accessed 7/3/19]

Staff involved and training required

The registered general nurse will carry out the ankle brachial pressure index and for training see appendix 1

The HCA will complete the annual review template and for training see appendix 3

Advertising of service to patients

Details of this service will be available on the practice website.

Patients will be advised of the service at the point of diagnosis.

References

NICE Lower limb peripheral arterial disease: diagnosis and management

<https://www.nice.org.uk/guidance/cg147> online [accessed 7/3/19]

<http://www.patient.co.uk/doctor/peripheral-arterial-disease> online [accessed 7/3/19]

APPENDIX 1

GUIDELINES FOR THE MEASUREMENT OF ANKLE BRACHIAL PRESSURE INDEX (ABPI) USING DOPPLER ULTRASOUND

AIM

To provide evidence based principles for the measurement of Ankle Brachial Pressure Index (ABPI) using a Doppler ultrasound

BACKGROUND/EVIDENCE

The use of hand held continuous wave Doppler ultrasound equipment to perform an ABPI calculation is now considered a mandatory part of holistic leg ulcer assessment. However, it must be acknowledged that it is only one element of the holistic process and must not be used in isolation. Vowden and Vowden (2001)

The ABPI is derived from the ratio of the arm systolic pressure, taken as the best non invasive estimate of central systolic pressure, and the highest ankle systolic pressure. The resulting ABPI provides some indication of the level of arterial blood flow to the foot. The ABPI is meaningless without a full assessment but is thought to be useful

- As part of holistic assessment of leg ulceration
- Recurrence of leg ulceration
- Before commencing / recommencing compression therapy
- Foot colour and / or temperature of the foot change
- Part of ongoing assessment
- Assessment of peripheral vascular disease
- To monitor disease progression

Assess people with suspected peripheral arterial disease by: asking about the presence and severity of possible symptoms of intermittent claudication and critical limb ischemia
examining the legs and feet for evidence of critical limb ischemia, for example ulceration
examining the femoral, popliteal and foot pulses measuring the ankle brachial pressure index (see below)

CONTRAINDICATIONS

- Cellulitis
- Deep Vein Thrombosis
- Painful ulcers to the ankle

CLINICIAN ELIGIBLE TO USE THIS GUIDELINE

Any RGN who has received appropriate training and education required to perform Doppler assessments. This may follow a period of in house education/training and supervised practice in

accordance with the clinicians personalised development plan. Unless operators have undergone formal training in Doppler ultrasound technique, ABPI measurements can be unreliable (RCN, 2006).

CONSIDERATIONS

- Repeatedly inflating the cuff, or leaving inflated for long periods of time, can cause the ankle pressure to fall by producing an hyperaemic response
- If the pulse is irregular (as in Atrial Fibrillation) it may be difficult to measure the systolic pressure as it can vary markedly from beat to beat (Vowden and Vowden 1996)
- Calcification of the artery may make it impossible to occlude the artery or may provide false high readings
- ABPI readings in patients with diabetes, atherosclerosis or oedema may produce falsely high readings (RCN, 2006)
- Care should be taken in patients with rheumatoid arthritis as, although their deep vessels may be functioning correctly, there is a high risk of micro vessel disease.

EQUIPMENT REQUIRED :

- Doppler
- Correct probe transducer:
5 MHz – optimum range of 1 – 8cm for deep vascular studies / oedematous limbs
8 MHz – optimum range of 2mm – 4cm ideal for ABPI on average limbs
- Correct size Sphygmomanometer cuff
- Ultrasound gel
- Clear film if active ulceration present

PROCEDURE AND RATIONALE

1. Explain procedure and gain verbal consent from the individual. Consider language barriers, mental health needs. Physical disabilities or cognitive impairment or learning difficulties .Aim to provide confidence and reassurance to the person.

2.Remove any tight clothing from both arms and stockings/socks from both legs. Consider cultural differences (undressing etc) . Aim to respect the individuals privacy and dignity.

3.Remove dressings from any active ulceration and cover with cling film to prevent contamination of Doppler equipment and reduce risk of further trauma to ulcer.

4.Rest the patient for 10-15 minutes in a supine position where possible (Williams et al 1993, Stubbing et al 1997).This is to allow time for the patient to recover from any exertion and reduce any pressure inaccuracies.

5.Using an appropriate size sphygmomanometer cuff record the patients blood pressure as per normal procedure .Leave the sphygmomanometer cuff in place. Locate the brachial pulse by palpation and apply ultrasound gel.

6. Select an appropriate size Doppler probe 8mm Hz probe is generally used for detecting pulses. 5mm Hz probe is used on oedematous limbs. Angle the Doppler probe at 45 degrees into the direction of the blood flow over the brachial pulse to detect a signal (Williams, 1995)

7. Inflate the sphygmomanometer cuff until the signal disappears and deflate slowly until the signal returns. In order to obtain brachial systolic pressure. Repeat this procedure with the other arm and use the higher of the two values to calculate the ABP

8. Place the sphygmomanometer cuff around the patient's ankle immediately above the malleoli. If the cuff is placed higher than the ankle the pressure reading obtained will not be the ankle pressure (Vowden and Vowden, 1996)

9. Locate the Dorsalis Pedis if palpation is possible. If unable to palpate apply ultrasound gel and locate with Doppler probe. Inflate the cuff and follow the procedure as for the arm to obtain systolic ankle pressure.

10. Repeat the procedure for the Posterior Tibial pulse. Measurement of one pressure alone can result in inaccuracy which may be clinically significant (Stubbing et al 1997). Use the higher of these two values to calculate the ABPI (Vowden and Vowden 1996). This is the ankle systolic pressure. Usually two pedal pulses sufficient,.

11. Calculate the Ankle Brachial Pressure Index (ABPI) for each leg using the following formula :

Highest ankle pressure divided by highest brachial pressure
.= Ankle Brachial Pressure Index

REFERENCES

Royal College of Nursing (2006) Clinical Nursing Guidelines : The nursing management of patients with venous leg ulcers. RCN : London

Stubbing. N.J et al (1997) Protocol for accurate assessment of ABPI in patients with leg ulcers. Journal of Wound Care Vol 6 No 9 pp417 - 418

Vowden. K. R and Vowden P (1996) Hand held Doppler assessment for peripheral vascular disease. Journal of Wound Care Vol 5 No 3 pp125-128

Vowden. K. R and Vowden P (2001) Doppler assessment and ABPI : Interpretation in the management of leg ulceration www.worldwidewounds.com

Williams. C (1995) Diagnostic doppler ultrasound machines. British Journal of Nursing Vol 4 No22 pp1340-1344

Williams. I. M et al (1993) The use of Doppler ultrasound 1 : Arterial disease. Wound Management Vol 4 No 1

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<http://pathways.nice.org.uk/pathways/lower-limb-peripheral-arterial-disease#content=view-node%3Anodes-assessment-and-diagnosis>

NHS Ayrshire and Arran Guideline on Ankle Brachial Pressure Index

[http://inps80081w2k3/Guidelines/ABPI%20\(Ankle%20Brachial%20Pressure%20Index\)%20Guideline.pdf](http://inps80081w2k3/Guidelines/ABPI%20(Ankle%20Brachial%20Pressure%20Index)%20Guideline.pdf)

