**Ankle Brachial Pressure Index (ABPI) measurement**

Purpose: To measure the presence and severity of peripheral arterial disease.

Ensure that you are fully aware of the clinical indicators for the test. Inform the patient why the test is being performed, remembering that many patients will know the routine very well and will recognise any anomalies.

ABPI measurement quantifies arterial insufficiency by measuring the ratio of brachial to ankle systolic pressure. In order to eliminate errors due to hydrostatic pressure the sites of measurement should be at the same height, the patient should therefore lie as flat as is practical without causing obvious undue stress. Ensure access to the ankles is readily available to avoid delay.

Place the sphygmomanometer cuff on the usual site in the upper arm. Performing the arm pressure first not only gives a baseline for pressure but ensures that all equipment is functioning.

Place a small amount of ultrasound gel over the brachial or radial artery and obtain a blood flow signal from the Doppler device using an acute an angle to the skin as possible.

Inflate cuff to beyond systolic pressure, at which blood flow stops, slowly deflate and measure systolic blood pressure at the point at which pulsatile blood flow resumes.

Correctly place the cuff a few centimetres above the malleolus of the asymptomatic or better leg obtain the optimum flow signal from the posterior tibial artery (PT) and measure systolic pressure.

Repeat the procedure for the dorsalis pedis artery (DP).

Place the cuff on the other leg and measure PT and DP systolic pressures.

Repeat brachial measurement with contra-lateral arm if appropriate.

Amendments to this basic procedure may be needed depending on the clinical situation.

Reporting: The ABPI is calculated using the highest brachial pressure measurement (if multiple measured) and the higher between the PT & DP for each leg using the formula:

ABPI = Ankle systolic pressure/ Brachial systolic pressure

If conventional ABPIs are not suitable due to: leg ulceration, leg swelling, heavily calcified and therefore incompressible vessels, presence of lower limb bypass graft, patient unable to tolerate cuff discomfort, previous failed conventional ABPIs, upper limb disease, presence of upper limb AVF or patient is unable to lie as flat as required. Then estimated ABPIs are used, which are calculated without the use of cuffs, using the doppler acceleration index. Due to the patient demographic seen in the VAU, estimated ABPI is the more commonly used/requested method, locally.

References

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Ankle Doppler for Cuffless Ankle Brachial Index Estimation and Peripheral Artery Disease Diagnosis Independent of Diabetes Alexander D. Rodway 1,2, Darren Cheal 2 , Charlotte Allan 1 , Felipe Pazos-Casal 1 , Lydia Hanna 3 , Benjamin C. T. Field 1,4 , Ajay Pankhania 1 , Philip J. Aston 5 , Simon S. Skene 4 , Gary D. Maytham 1,6 and Christian Heiss 1,4,  
Journal of Clinical Medicine 2023