

Safe compression and accurate ABPI – overcoming barriers

This article is based on a Made Easy workshop held at the Wounds UK annual conference in Harrogate, UK, on 13th November 2017. The aim of the workshop was to provide practical information about the importance of obtaining accurate assessment, in order to initiate compression therapy as early as possible in suitable patients. Being able to obtain an accurate ankle-brachial pressure index (ABPI) measurement quickly and efficiently can save time and resources in the long run, and improve treatment outcomes, helping both patient and practitioner.

THE COST OF MANAGING WOUNDS IN PRACTICE

The Burden of Wounds study (Guest et al, 2015) demonstrated the cost of wounds to the healthcare system. It is estimated that 1.5% of the adult population are living with a leg ulcer, and the annual cost of managing wounds, with associated comorbidities, is estimated at £5.3 billion. Looking at these statistics, Karen Staines (Lead Nurse, Wound Care/Education, Accelerate CIC) explained that, more alarmingly, 19% of patients with a leg ulcer were found to have received no differential diagnosis – meaning that, without linking treatment to an underlying cause, patients are not receiving optimised treatment.

Early identification and assessment is vital to improving this issue. Karen asked, ‘when does a lower leg wound become a leg ulcer?’. A leg ulcer is defined as ‘a break on the skin, which fails to heal within 2 weeks’ (NICE, 2016). Therefore we now know that patients should be assessed within 2 weeks, as opposed to the previous misconception that this can be within 6 weeks. Patients presenting with any signs of venous disease (e.g. skin changes, oedema), should be assessed within a maximum of 10 days to aid diagnosis of aetiology (NICE, 2013; Wounds UK, 2013). All patients presenting with a leg ulcer should be referred to a specialist leg ulcer clinic or vascular team (NICE, 2013).

We know that early assessment and optimised treatment are key to positive patient outcomes – reduction in wound size during the first 4 weeks of treatment has been found to be the best prognostic indicator that the wound will eventually heal within 6 months (Kantor and Margolis, 2000). Recurrence is also a significant issue, with recurrence rates varying, but possibly as high as 69% (Nelson et al, 2014).

CONDUCTING ASSESSMENT AND OPTIMISING TREATMENT

Compression should be seen as a first-line treatment in venous leg ulcers (VLUs) wherever possible, and is also beneficial in mixed aetiology ulcers. We now have more tools for initiating compression therapy, with wraps and hosiery available as well as traditional bandaging options. In order to start compression therapy, the patient must be assessed in order to exclude arterial disease.

Effective management of VLUs should involve compression therapy of approximately 40 mmHg; patients with a mixed aetiology ulcer may benefit from reduced compression therapy of 20–30 mmHg. All patients must have a vascular assessment if requiring compression therapy greater than 17 mmHg (Wounds UK, 2015).

Tools for vascular assessment include:

- ▶▶ Ankle brachial pressure index (ABPI) – bedside test to exclude significant arterial disease comparing systolic blood pressure at the ankle with the arm
- ▶▶ Toe brachial pressure index (TBPI) – similar to ABPI, whereas here the cuff is placed on the hallux to obtain toe pressure (may be beneficial if a cuff cannot go around the ankle, e.g. due to painful ulceration)
- ▶▶ Pulse oximetry – a secondary diagnostic tool to measure levels of oxygen in the blood, although not reliable at excluding peripheral vascular disease
- ▶▶ Arterial duplex scan – non-invasive ultrasound scan of the arteries, used to visually assess structure and blood flow.

Table 1. Comorbidities which may influence the results of the ABPI

Comorbidity	Effect on ABPI results
Diabetes	Calcification of arteries — may elevate ABPI
Renal Disease	BP fluctuation — may result inaccurate ABPI
Rheumatoid Arthritis	Vasculitic pain and calcification — may result in elevated ABPI
Arteriosclerosis	Hardening of arteries — may elevate ABPI
Cardiac Arrhythmias	Difficult to assess sounds and pinpoint return of blood flow/systolic pressures — may result in inaccurate ABPI
Peripheral Oedema	Inaccurate results of elevated ABPI

Table 2. ABPI indicators for compression therapy (Adapted from Harding et al, 2015)

ABPI = 1.0–1.3	No indicators of peripheral arterial disease (PAD)	Apply high levels compression therapy
ABPI = 0.81–1.0	Mild PAD	May have high levels of compression therapy — monitor ABPI
ABPI = 0.51–0.8	Significant PAD	May have reduced compression — refer to specialist nurse/vascular
ABPI <0.5	Severe PAD	No compression — urgent referral to vascular
ABPI >1.3*	Measure toe pressures or refer to specialist	May have compression therapy — liaise with specialist nurse/vascular

*Note that young patients may have high ABPI not indicative of PAD

ABPI is a useful tool for early identification and in order to start suitable patients on compression therapy as soon as possible. It is a non-invasive tool to aid the diagnosis of peripheral arterial disease (PAD) and guide the use of compression therapy within treatment of VLUs.

It is important to remember that ABPI measurement should be part of a holistic patient assessment. ABPI alone is not an indicator that a patient is suitable for compression therapy; all patients needing compression therapy greater than 17mmHg require a full holistic assessment (Wounds UK, 2015).

ABPI testing may not be suitable in patients with:

- ▶▶ Cellulitis (can be performed but this will be dependant on the patient’s pain levels)
- ▶▶ Suspected deep vein thrombosis (DVT)
- ▶▶ Severe limb ischaemia
- ▶▶ Painful circumferential ulceration.

See *Table 1* for a list of comorbidities that may affect ABPI results. When compression therapy is initiated, it is important to continue to monitor the patient. All patients with leg ulceration should be reviewed 4-weekly (Harding et al, 2015), and patients with non-healing ulcers or further skin breakdown should be reassessed every 3 months (Wounds UK, 2015).

OVERCOMING BARRIERS

Currently, ABPI testing is not being done enough (Guest et al, 2015), which is often due to lack of clinician competency and time constraints. Particularly if nurses are not carrying out the procedure regularly, the procedure may take longer and be less accurate. Using suitable equipment in practice is also an issue.

However, new developments are making it quicker and easier to carry out ABPI testing and optimise early treatment accordingly. The MESI ABPI MD (medi UK) provides a simple solution for quick and accurate assessment of ABPI, with no need for resting prior to the assessment, thus saving practitioner time. Three colour-coded cuffs are used simultaneously to provide a read-out within 1 minute of application; the colour-coding shows where to position each cuff (upper arm, right ankle and left ankle, and there is a useful setting that can be used in the case of an amputee).

The device is lightweight and portable (it can be carried in a rucksack), making it suitable for use in most care settings. It is battery-powered; a single charge of the battery will power the device for 50 readings. The patient can remain fully dressed while the device is used, and the cuffs come in both large and standard size. The reading will supply a

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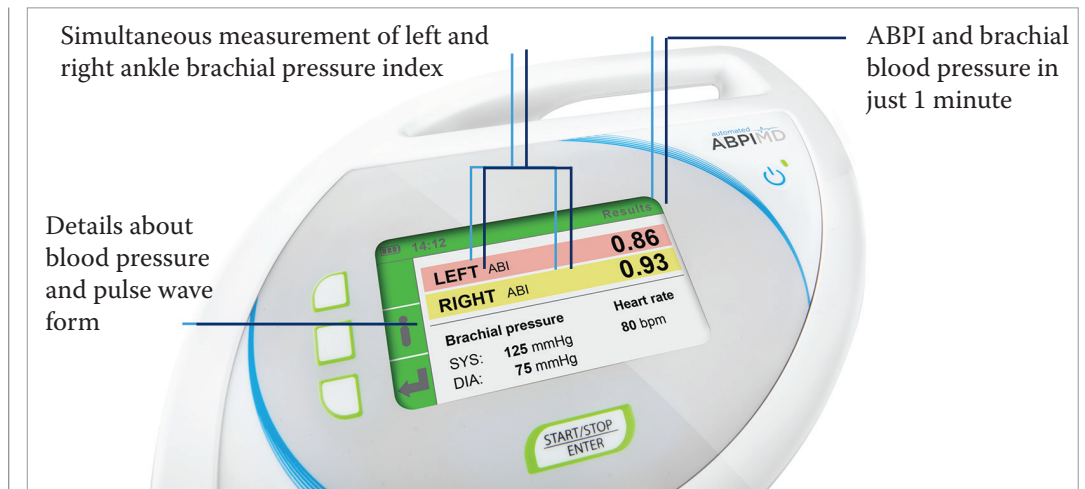


Figure 1. The reading will supply a print-out of the patient's ABPI, blood pressure and heart rate

print-out of the patient's ABPI, blood pressure and heart rate (Figure 1). Figure 2 shows how the device works in practice.

USE IN PRACTICE

Attendees of the workshop had the opportunity to use the device in practice. They found that it was quick and easy to gain an accurate ABPI reading. The 'ABPI challenge' saw the attendees try to obtain as many ABPI readings as possible within a 20-minute timeframe using the device.

The group used three devices simultaneously and were able to take a total of 56 readings in the allotted time. In context, this is the time a patient would usually have to rest before using a traditional ABPI measurement, so the time saving is hugely significant.

The attendees were asked whether they currently undertook ABPI measurement as part of their daily practice, and asked whether they

enjoyed this — the response to this was very mixed; with the majority using ABPI measurement, but a smaller number voting that they enjoyed the process.

At the end of the session, the group were asked whether they would use the MESI ABPI MD device to improve their daily practice if they had the opportunity. All attendees voted that they would use the device and that it could make accurate assessment a more efficient process that would optimise resultant treatment.



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Figure 1. Testing using the MESI ABPI MD device