

MESI ABPI MD

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easy

Introduction

Accurate assessment of patients with a leg ulcer is critical to initiating 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 patients and clinicians — and potentially easing the burden of limited resources within the healthcare system. A new device (MESI ABPI MD, medi UK) for measuring ABPI clearly and accurately could enhance clinical practice with respect to assessment and management of patients with leg ulcers. This guide contains practical tips for using the device and ensuring that patients with leg ulcers receive optimised care.

Author: Mullings J (see page 4 for full author details)

ABPI ASSESSMENT: A GAP IN CARE

The Burden of Wounds study (Guest et al, 2015) demonstrated the cost of wounds to the healthcare system — leg ulcers are prevalent in the adult patient population and cost billions each year (Figure 1). In addition, nearly 1 in 5 people with a leg ulcer receive no differential diagnosis, meaning that the underlying cause of the wound has not been determined (Staines, 2018).

The first building block is understanding the difference between a leg wound (e.g. acute) and a leg ulcer (Box 1). From there, ensuring the earliest possible assessment is necessary for determining the aetiology of the wound (e.g. venous, arterial, mixed). In the absence of a full understanding of aetiology, the appropriate choices for wound management cannot be made. Positive patient outcomes rest on the optimisation of treatment. Early intervention is also key: when wound size is reduced during the first 4 weeks of treatment, it is more likely that the wound will heal within 6 months (Kantor and Margolis, 2000).

Without early identification and assessment, more resources — both human and financial — are spent on inappropriate care and treatments that will not aid healing of the wound, which can lead to increased chronicity, costly infection and even more intensive levels of intervention. Currently,

Box 1. Defining a leg ulcer — and the implications

NICE (2016) defines a leg ulcer as 'a break on the skin, which fails to heal within 2 weeks'. Staines (2018) suggests that clinical guidelines and perceptions should shift to meet this definition, calling for assessment within 2 weeks, rather than 6. 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).



Figure 1. The burden of leg ulcers (Guest et al, 2015)

In addition to ABPI, the reading will supply a print-out that includes blood pressure and heart rate. Testing with the MESI ABPI MD device is a user-friendly process that can be done at the touch of a button

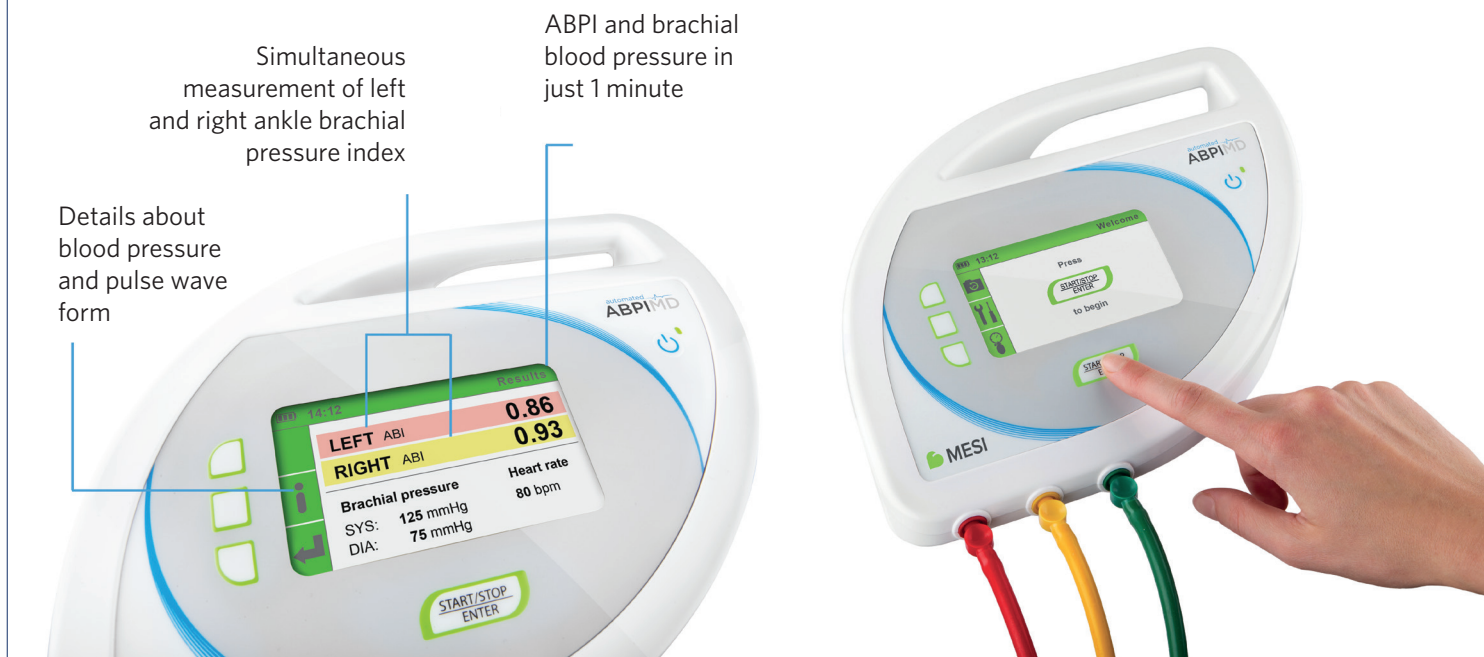


Figure 2. Guide to using MESI in practice

Box 2. Methods for assessing vascular status

- Ankle brachial pressure index (ABPI) — bedside test to exclude significant arterial disease by comparing systolic blood pressure at the ankle with the arm
- Toe brachial pressure index (TBPI) — similar to ABPI, but 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 blood oxygen levels, although not reliable at excluding peripheral vascular disease
- Arterial duplex scan — non-invasive ultrasound scan of the arteries, to visually assess structure and blood flow

nonhealing wounds add a further £3 billion to the total cost, and leg ulcer recurrence rates may be as high as 69% (Guest et al, 2015; Nelson and Bell-Syer, 2014). In addition, up to 30% of leg ulcers are arterial in origin, and failure to assess the arterial supply and differentiate diagnosis before application of compression therapy could result in tissue necrosis and, in the extreme, loss of a limb (Harding et al, 2015; Grothier, 2017).

There are a number of tools for vascular assessment in patients with leg ulceration (Box 2). Testing for ABPI is well established, noninvasive, relatively quick and considered the

standard tool for vascular assessment to rule out arterial involvement (RCN, 2006; SIGN, 2010). It allows clinicians to establish wound aetiology and categorise a VLU as simple, complex or mixed aetiology, gather indicators for management and assess suitability for compression therapy, and decide whether there is a need for referral to a specialist (Harding et al, 2015).

Despite its many benefits in the diagnosis and management of venous leg ulcers, ABPI is under-used in clinical practice (Guest et al, 2015). Practical barriers to use of ABPI include cost, time constraints, and lack of clinician competency in taking and understanding the readings, particularly for individuals who do not regularly carry out ABPI. In addition, inexperienced providers may take longer to perform ABPI readings and do so with less accuracy (Staines, 2018). To improve practice, more user-friendly and suitable ABPI equipment needs to be more widely available, to ensure assessment triggers appropriate care, saving time and resource in the long run.

INTRODUCING MESI ABPI MD

New developments are making it quicker and easier to carry out ABPI testing, generate accurate results and optimise early treatment accordingly. The MESI ABPI MD provides a simple solution for quick and accurate assessment of

ABPI (Figure 2). Three colour-coded cuffs are inflated simultaneously to provide a read-out within 1 minute; the colour-coding shows where to position each cuff (upper arm, right ankle and left ankle; there is also a useful setting that can be used in the case of an amputee).

The device is lightweight (600g) 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 40-50 readings. The device itself can store up to 30 readings, enabling a clinician to run a clinic or visit community patients and still have access to the information. No personal data are stored, just time and date of the ABPI. The patient can remain fully dressed during the reading, and the cuffs come in standard and large sizes. The device produces a colour-coded print-out of pulse wave form, and it also measures blood pressure and heart rate.

The device is automated, and measures ABPI based on oscillometry and volume plethysmography. The blood pressure on the upper and lower extremities is measured simultaneously. The result is generated in 1 minute, compared to the usual 30 minutes for the manual blood pressure and traditional doppler method, which means that, including patient resting time of 20 minutes, measurement is completed faster whether a patient is straightforward or more complex. This translates to less waiting time and more patients who can be assessed. In addition, set-up is easy, regardless of clinician expertise, requiring only the application of three cuffs. Resting is not required prior to using the device as all cuffs inflate simultaneously — eliminating any normal fluctuation in blood pressure. The measurement is repeatable and clear, leading to greater accuracy of assessment.

The timesaving element of the device has been found in practice to make a significant difference in the number of patients who can be seen, as well as freeing up extra time in individual appointments that can be spent with the patient. This saving in clinician time results in knock-on cost and resource savings.

Furthermore, only one nurse is needed to carry out the assessment, further freeing resources for patient care. As a result, MESI ABPI MD represents a significant new advance that will help to address the current barriers to ABPI assessment in practice.

THE WAY FORWARD

ABPI is a useful tool for early identification and in order to start suitable patients on compression therapy as soon as possible. However, 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

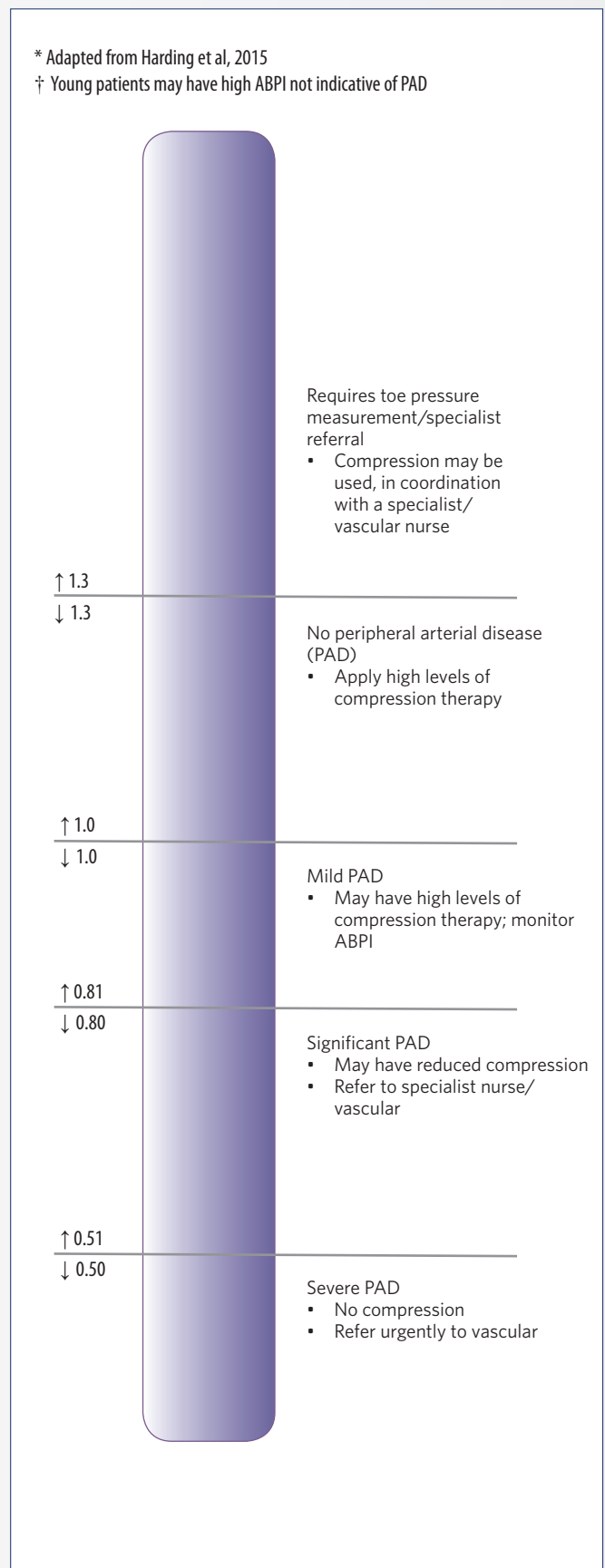


Figure 3. ABPI measurement indicators for compression therapy*†

therapy at pressures greater than 17mmHg require a full holistic assessment (Wounds UK, 2015).

ABPI testing may not be suitable in patients with: cellulitis (dependent on patient's pain levels/tolerance), suspected deep vein thrombosis, severe limb ischaemia and painful circumferential ulceration. In these cases, the patient should be referred to a vascular specialist service for assessment.

Determination of whether to use compression therapy should be based on ABPI measurement indicators (Figure 3). A clinician with appropriate training should choose the compression level based on the results of holistic assessment, patient needs (e.g. concordance with therapy, psychosocial issues, activity levels) and local protocols (Augustin et al, 2012; Staines, 2018). When compression therapy is initiated, it is important to continue to monitor the patient. All patients with leg ulceration should be reviewed at 4-weekly intervals, and patients with nonhealing ulcers or further skin breakdown should be reassessed every 3 months (Harding et al, 2015; Wounds UK, 2015).

SUMMARY

The MESI ABPI MD is a development that advances ABPI testing by overcoming many of the barriers to its use in clinical practice. The device is user-friendly and does not require extensive training; in fact, the automated testing unit provides quicker, repeatable, more accurate results. In addition to being cost-effective, the MESI ABPI MD frees clinical resources that can be devoted to patient care. Patients further benefit from the accuracy of ABPI readings by receiving optimised care or appropriate referral for their conditions, which increases the chance that their wounds will move efficiently towards healing.

REFERENCES

- Augustin M, Carville K, Clark M et al (2012) *International consensus. Optimising wellbeing in people living with a wound. An expert working group review*. London: Wounds International. Available from: www.woundsinternational.com
- Grothier L (2017) *CPRO28: Leg ulcer management guidelines*. Maldon, UK: St Peters Hospital Tissue Viability Centre
- Guest JF, Ayoub N, McIlwraith T et al (2015) Health economic burden that wounds impose on the National Health Service in the UK. *BMJ Open* 5:e009283. doi:10.1136/bmjopen-2015-009283
- Harding K, Dowsett C, Fias L et al (2015) *Simplifying venous leg ulcer management. Consensus recommendations*. London: Wounds International. Available from: www.woundsinternational.com
- Kantor J, Margolis DJ (2000) A multicentre study of percentage change in venous leg ulcer area as measured using digital planimetry for 4 consecutive weeks following the inception of good wound care. *Br J Dermatol* 142 (5): 960-4
- National Institute for Health Care and Excellence (2013) *Varicose veins: Diagnosis & Management*. Available from: <https://www.nice.org.uk/guidance/cg168> (accessed 30.04.2018)
- National Institute for Health Care and Excellence (2016) *Leg ulcer — venous*. Available from: <https://cks.nice.org.uk/leg-ulcer-venous> (accessed 30.04.2018)
- Nelson EA, Bell-Syer SE (2014) Compression for preventing recurrence of venous ulcers. *Cochrane Database Syst Rev* 9: CD002303
- Royal College of Nursing (2006) *Clinical practice guidelines: The nursing management of patients with venous leg ulcers*. London: RCN
- Scottish Intercollegiate Guidelines Network (2010) *Management of chronic venous leg ulcers: a national clinical guideline*. Edinburgh: SIGN
- Wounds UK (2013) *Guidelines for practice: Optimising venous leg ulcer services in a changing NHS: a UK consensus*. London: Wounds UK. Available from: www.wounds-uk.com
- Wounds UK (2015) *Best practice statement: Compression hosiery*. London: Wounds UK. Available from: www.wounds-uk.com

AUTHOR DETAILS

Julie Mullings
Trust Lead Nurse in Tissue Viability, Wythenshawe Hospital,
Manchester University NHS Foundation Trust



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