Wounds UK

CATEGORY:
ASSESSMENT

MESI ABPI MD

MAKING THE CASE

INTRODUCTION

Ankle Brachial Pressure index (ABPI) is an essential part of holistic assessment of patients with a leg wound. It is important to accurately assess ABPI as this helps to rule out any arterial disease and identifies patient suitability for compression therapy.

ABPI is a value calculated when comparing the arterial blood pressure and flow at the ankles, with that of the upper arm. A healthy ABPI confirms that it is safe to apply compression therapy to help wound healing, improve vascular return, control oedema or prevent recurrence of an ulcer. A reduced ABPI (<0.8) indicates a reduced arterial flow at the ankles, known as peripheral arterial disease (PAD). Compression is contra-indicated when PAD is present, and an early referral may help to prevent progression of the disease. ABPI also helps to guide decision makers to the correct level of compression (mmHg).

ABPI assessment should be repeated every 3, 6 or 12 months, depending on the patient's condition and in accordance with local guidelines. Adoption of new technology will help to ensure that a decision on compression therapy or further referral for PAD assessment is made at an early stage (APPG, 2016) thereby ensuring that appropriate treatment decisions are made and implemented. This helps to improve outcomes and reduce the costs associated with lower limb management.

ACCURATE ASSESSMENT

Around 2.2 million wounds are treated annually, costing billions to the global economy (Guest, 2015). The Burden of Wounds study by Guest et al (2015) found that 30% of wounds lacked assessment, leading to inappropriate treatment.

National guidance in the UK for the management of leg and diabetic foot ulceration requires arterial assessment by Doppler ultrasound. Yet in the study, only 16% of patients with a leg or foot ulcer underwent assessment (Guest et al, 2015). This may be in part because Doppler can be complex and time-consuming.

Another practical barrier to measuring ABPI is that non-user-friendly equipment is often combined with lack of competency among clinicians, particularly in those who do not regularly carry out ABPI readings (Staines, 2018). Results are open to individual interpretation by the healthcare professional, which can skew accuracy. Early, accurate assessment helps to ensure that an appropriate care pathway is followed, either through referral if PAD is detected or by the timely application of compression. A delay in full assessment can result in increased chronicity, costly infection and avoidable amputations (APPG, 2016).

In suitable patients, compression therapy should be first-line treatment initiated as soon as possible to optimise healing and can benefit patients in both acute and chronic management (Wounds UK, 2016). As well as aiding healing of existing ulcers, in at-risk patients, compression can prevent ulcer development. Different compression options may be suitable for different patients, depending on the clinical challenges present (Wounds UK, 2016).

Added to this, the risk of PAD increases in an ageing population. Current NICE figures state that 20% of people over 60 years of age have some degree of PAD (NICE, 2018); early diagnosis helps to avoid worsening of the condition that can result in critical limb ischaemia (CLI) (APPG, 2016).

People with diabetes are 20 times more likely to have a lower limb amputation due to PAD than people without diabetes (Diabetes UK, 2017). Identifying PAD and CLI in patients with diabetes can be more difficult as the symptoms are not always obvious or distinguishable. For example, many people think pain on walking is a key indicator – however, there may have been months of deterioration before the patient experiences pain, which could be detected by ABPI testing.

THE DEVICE: MESI ABPI MD

New technology is simplifying the process of ABPI measurement, efficiently generating accurate readings and providing a visual pulse waveform that relieves the burden on clinicians to accurately interpret sound waves. The MESI ABPI MD® device (medi UK) enables accurate differential diagnosis, meaning targeted treatment can be prescribed. This avoids complications and wound chronicity that are highly detrimental to patients, as well as costly.

MESI ABPI MD provides a simple solution for quick and accurate assessment of ABPI by assessing the arterial flow at the ankles and comparing it with the arm. The device, which measures ABPI based on oscillometry and volume plethysmography, is automated, making the process user-friendly and removing the potential for human error.

Set-up is easy, regardless of clinician expertise. The Mesi ABPI MD employs 3CUFF™ technology to give an accurate view of what is happening in the body. The cuffs are clearly marked to show the correct limb and application site. At the press of a button, three colour-coded cuffs check the pressure on each limb simultaneously. The inflation and deflation of the cuffs takes a minute; the ABPI is displayed a few seconds later. Simultaneous inflation of all three cuffs eliminates any fluctuation in blood pressure. The device generates a colour-coded print-out of pulse wave form that lists ABPI, upper and lower limb blood pressure and heart rate (Mullings, 2018). It is also very simple to switch the arm cuff to the other side and repeat the reading if there are other health concerns.

Conversely, the traditional Doppler method requires the patient to lie flat for a minimum of 10 minutes in order to obtain a resting pressure (Al-Qaisi et al, 2003). Any wound dressings must be removed and wounds covered with clear film to reduce risk of cross-infection (Kenny, 1997). Patients are also required to remove any tight articles of clothing. Brachial systolic blood pressure and ankle systolic pressure must be measured twice in each area manually, and the clinician must use the highest of the two readings to perform the

Explanation of how to use this guide: This document can be used to make the case for implementing effective assessment and management measures and may be supported by data from your own care setting. As well as economic impact, it is important to know the impact of interventions on patient quality of life and outcomes.

calculation to generate an ABPI reading (Ruff, 2003).

With MESI ABPI MD, a clear reading is provided to guide appropriate treatment (Figure 1).

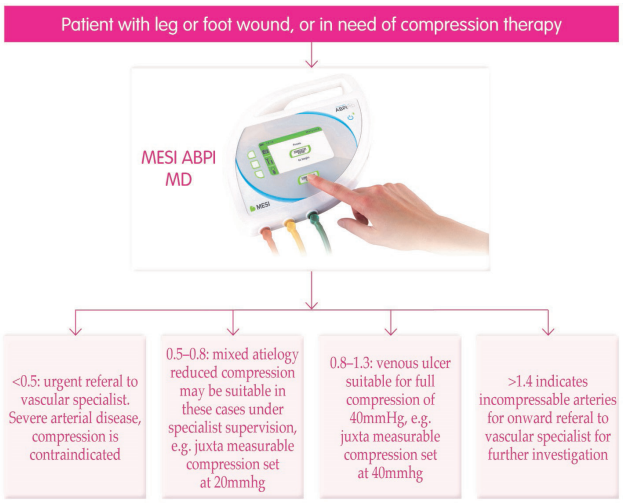

Figure 1: ABPI results and appropriate treatment

PRACTICAL BENEFITS

Results are robust and can be shared. The measurement is repeatable and clear, leading to greater certainty of assessment. Traditional assessment requires skill and competency to interpret readings from sound waves, which is often not adequate, and frequent refresher training is required to maintain skill levels. Furthermore, hearing is subjective and noisy clinic environments can lead to an inability to accurately hear sounds. This level of interpretation can lead to misinformation, which is not an issue when using the MESI ABPI MD device.

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.

COST/TIME BENEFITS

MESI ABPI MD saves significant time compared with traditional Doppler. Recent data of approximately 137 readings reported average ABPI measurement time of 3 minutes 45 seconds on the couch. Just eight patients presented with PAD (6%), meaning the vast majority (94%) of patients were suitable for lower limb compression therapy. The average ABPI recorded was 1.16 and 1.17 respectively for right and left leg. Detection of PAD, indicated by a very low ABPI (<0.5), is an additional benefit as early referral can prevent deterioration and amputation.

These results are generated in 1 minute, compared to the usual 30 minutes for the manual and traditional Doppler method. The saving in clinician time results in knock-on cost and resource savings.

In practice, the timesaving nature of the device has been found to make a significant difference to the number of patients that can be seen. It results in less waiting time and more time spent with the patient in individual appointments. The device enables an ABPI reading to be taken within the routine GP or practice nurse appointment slot, reducing the costs associated with referring for specialist treatment. Only one nurse is needed to carry out the assessment, further freeing resources for patient care.

PATIENT BENEFITS

The device is conducive to patient comfort. The patient can remain fully dressed during the reading and the cuffs come in standard and large sizes. There is no need to rest the patient prior to taking the measurements. Resting frail patients with comorbidities for any length of time is uncomfortable for them and may result in false readings. With MESI ABPI MD, they are requested to lie as flat as possible and remain still for one minute; they can then sit up while the machine is making the final calculations.

Summary – why use it?

MESI ABPI MD represents a significant new advance that will help address current barriers to ABPI. The device makes testing much quicker, saving clinician time and facilitating earlier treatment. The ability to generate automated readings removes the possibility of human error when interpreting sound waves and provides clear, accurate readings that can be shared. Thus, the device can offer huge cost savings while facilitating earlier and more focused treatment to improve patient outcomes.

References

Al-Qaisi M et al (2009) *Vasc Health Risk Manag* 5: 833-41

All-Party Parliamentary Group on Vascular Disease (2016)

Diabetes UK (2017) Available at: https://www.diabetes.org.uk/about_us/news/record-levels-of-diabetes-related-amputations (accessed 18.09.2018)

Guest JF et al (2015) *BMJ Open* 5:e009283. doi:10.1136/bmjopen-2015-009283

Kenny IJ (1997) *Journal of Wound Care* 6(3): 117-20

Mullings J (2018) Available from: www.wounds-uk.com/made-easy

National Institute of Care Excellence (2018) Available online at: https://www.nice.org.uk/guidance/cg147 (accessed 17.09.2018)

Ruff D (2003) Available from: https://www.nursingtimes.net/clinical-archive/nutrition/doppler-assessment-calculating-an-ankle-brachial-pressure-index/205076.article (accessed 18.09.2018)

Staines K (2018) *Wounds UK* 14(1): 64-7

Wounds UK (2016) Available to download from: www.wounds-uk.com (accessed 18.09.2018)

Wounds UK

This Making the Case guide was developed using the literature and data provided by medi UK