MESI
Simplifying Diagnostics

Peripheral Arterial Disease
An underdiagnosed condition

Information for general practitioners

Peripheral Arterial Disease (PAD) is a frequent but underdiagnosed condition, often with severe consequences. They include death, stroke, coronary heart disease, amputations, dementia and cognitive impairment.

The latest AHA Scientific Statement recommends that PAD screening with ABI is urgently implemented in high-risk populations. TBI or simultaneous measurement of ABI and TBI should be employed if suspecting medial artery calcification, e.g. in cases of chronic kidney disease (CKD) or diabetes[1].

Why screen for PAD?

UK POPULATION	**67 million**
PAD PREVALENCE	**6 million**

9 % of the UK population is affected by PAD in various degrees.[2]

RISK GROUPS

It is advisable to perform PAD screenings in patients of all risk groups.

<50 Patients under 50 with family history of PAD

<65 Patients under 65 with one or more of the following cardiovascular risk factors:
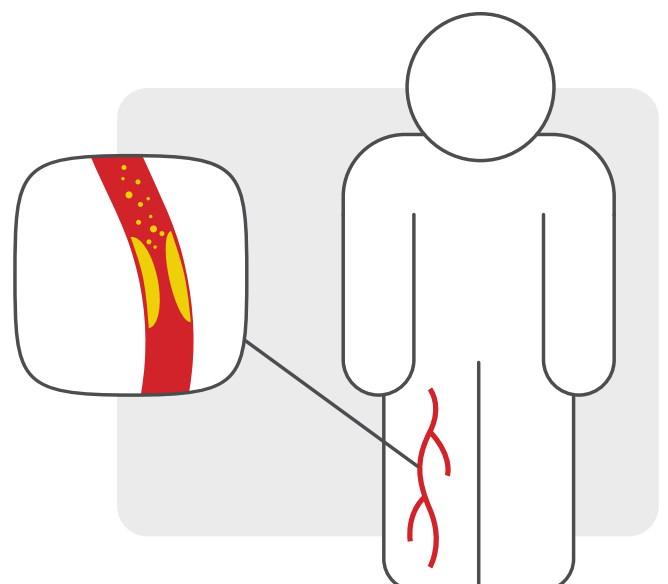
- Hypertension
- Overweight
- Diabetes
- Smoking
- High cholesterol

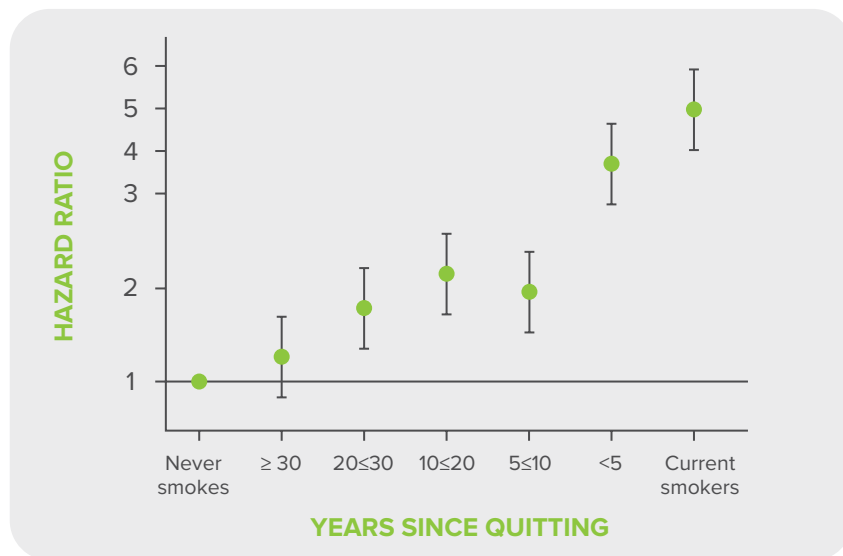**65+** Everyone over 65

Leg pain while walking

Impact of smoking

> **SMOKERS:**
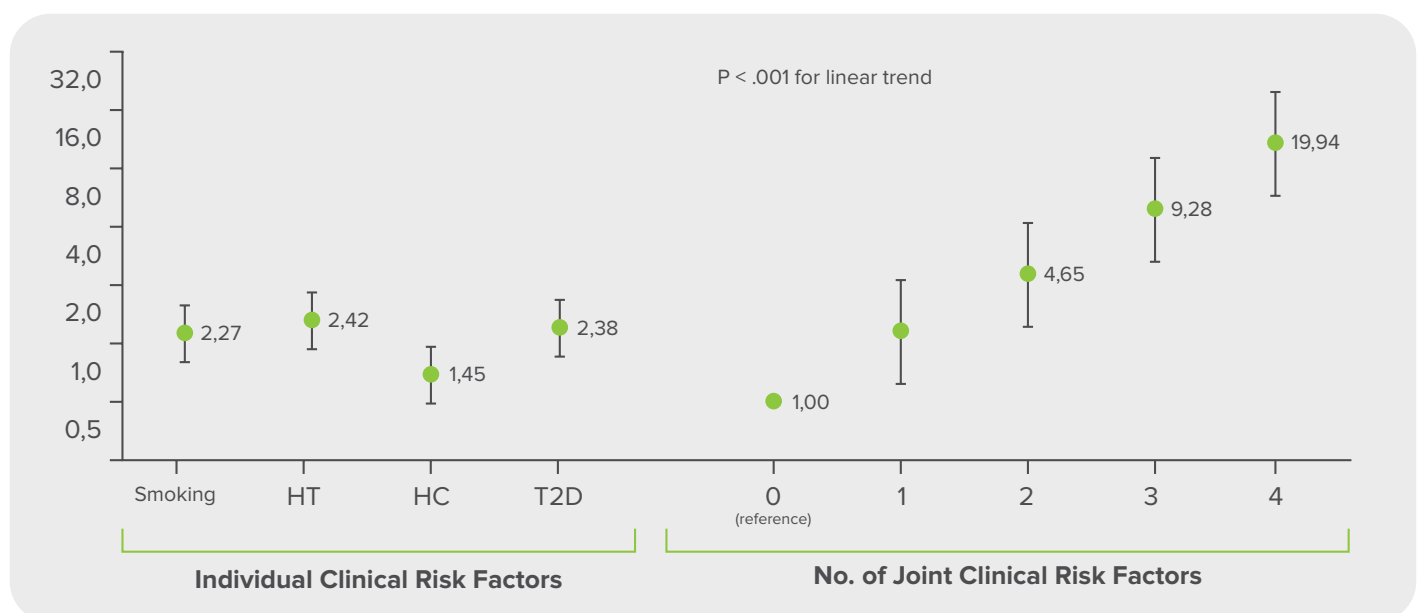> 2x greater risk of PAD compared to non-smokers

> **FORMER SMOKERS:**
> it takes up to 30 years for the PAD risk to reach the non-smoker level.[1]

Effect of combination of risk factors

> The duration of hypercholesterolemia and diabetes, the severity of hypertension, and cumulative intensity of smoking show graded relationships with PAD risk.[3]

70% of patients with PAD do not experience symptoms and are thus not diagnosed. The TASC II consensus document recommends Ankle-Brachial Index measurement for all PAD risk groups.[4]

ANKLE-BRACHIAL INDEX
A simple tool in detecting PAD

The Ankle-Brachial-Pressure Index (ABPI) or Ankle-Brachial Index (ABI) is an effective comparison of blood pressure in the legs and the arms. It is non-invasive and painless. Using MESI mTABLET ABI, the procedure is quick and simple. Therefore, the test can be implemented routinely in both primary and specialised care. The ABI test is extremely important for two reasons:

It is a reliable predictor of the occlusion of arteries in the extremities – PAD. PAD detection is even more important because over 70% of the patients are asymptomatic.

Due to a high co-occurrence of PAD with other diseases, diagnosed patients have a great chance of early diagnosis of other diseases such as:

> coronary artery disease (CAD) or cerebrovascular disease (CVD): 32% [5],

> renal insufficiency (RI): 39.7% [6],

> diabetes: 49.7% [7],

> metabolic syndrome: 58% [8]/63% (45+) [9],

> hypertension: 35–55% [10],

> hypercholesterolemia: 60% [11].

ABI reference scale

NON-COMPRESSIBLE	NORMAL	BORDERLINE	ABNORMAL	SEVERE
1.41 or more	1.40 - 1.00	0.99 - 0.91	0.90 - 0.51	0.50 or less

MESI mTABLET ABI
Pulse Waveform Recording

Normal result

The oscillation graph forms a clear lemon shape. This means that the arteries are elastic and that they responded to being briefly compressed by the cuff. The pulse waveforms have these characteristics:

1. A rapid rise in the upstroke during systole

2. A very sharp peak

3. A gradual downstroke

4. A presence of dichrotic notch

Abnormal result

A flattened pulsewave recording or one without the typical lemon shape is an indicator of severe PAD.

The absence of the pulsations caused by occlusions in the artery makes it impossible to calculate the ankle pressures. Instead of the ABI value, the device will display a "PAD" result.

FLATTENED PULSEWAVE RECORDING

ESC RECOMMENDATIONS [12]	CLASS [A]	LEVEL [B]
Measurement of the ABI is indicated as a first-line non-invasive test for screening and diagnosis of LEAD.	I	C
In the case of incompressible ankle arteries or ABI > 1.40, alternative methods such as the Toe-Brachial Index, Doppler waveform analysis or pulse volume recording are indicated.	I	C

ABI = Ankle-Brachial Index
LEAD = Lower-Extremity Artery Disease

[A] Class of recommendation
[B] Level of evidence

MESI mTABLET TBI
The Toe-Brachial Index (TBI) is used in diagnosing PAD:

> when the ABI measurement cannot be interpreted or is inadequate

> with non-compressible arteries in the legs (diabetes, insufficiency-related calcification)

> in patients with excruciating pain in the lower extremities

> in end-stage renal disease

> in patients undergoing dialysis

> in very advanced age

> and/or in patients with lymphedema

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Choose **MESI** for comprehensive arterial assessment

Why **MESI mTABLET ABI**?

> SmartArm™ detection – to determine the higher blood pressure of the two

> Automated, 3-cuff simultaneous measurement

> Multiple cuff sizes and ability to mix-and-match different size cuffs during one measurement

> Pulse waveforms and oscilation graphs

> Advanced review and alerts thanks to PADsense™ algorithm

Why **MESI mTABLET TBI**?

> Safe, simultaneous measurements in both arms and toes, with adaptive, infrared LED PPG light, detecting toe skin temperature and thickness

> FirstWave™ algorithm for detecting the first returning pulse waveform in the toes

> Comprehensive and reliable TBI report with pulse waveforms and oscillation graphs for the arms and PPG pulse waveforms for the toes

> Availability of single-use (disposable) toe cuffs

Expand the use of your ABI and TBI devices through smart applications

ABI Ankle-Brachial Index	**TBI** Toe-Brachial Index	**BP** Blood Pressure
DBP Dual Blood Pressure	**PWV** Pulse Wave Velocity	**aBP** Averaging Blood Pressure
Protocol Health Assessment Protocol	**Worklist** Patient Worklist	**Photo** Camera App

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