

Ankle pressure index

Ankle pressure index (ankle-brachial index, ABI, ankle-brachial pressure index, ABPI, Doppler index, DI) is a non-invasive diagnostic method that gives information about the ratio of arterial pressures on the upper and lower limbs.

This is an easy test to detect asymptomatic atherosclerosis. The sensitivity and specificity of the examination is about 80%, the most reliable for Lower Extremity Peripheral Artery Disease. Decreased values predict further development of angina pectoris, IM, internal heart failure, Lower Extremity Peripheral Artery Disease or Stroke.

False-negative values are usually obtained in patients with diabetes mellitus or mediocalcinosis. For these patients, we choose other methods (eg thumb-arm index, *toe-brachial index*).^[1]

Calculation

We perform the calculation for both lower limbs separately. We divide the measured pressure on the lower limbs by the value of blood pressure on the upper limbs (highest or highest average value)^[2].

$$ABI = \frac{BP_{\text{ankle}}}{BP_{\text{upper limb}}}$$

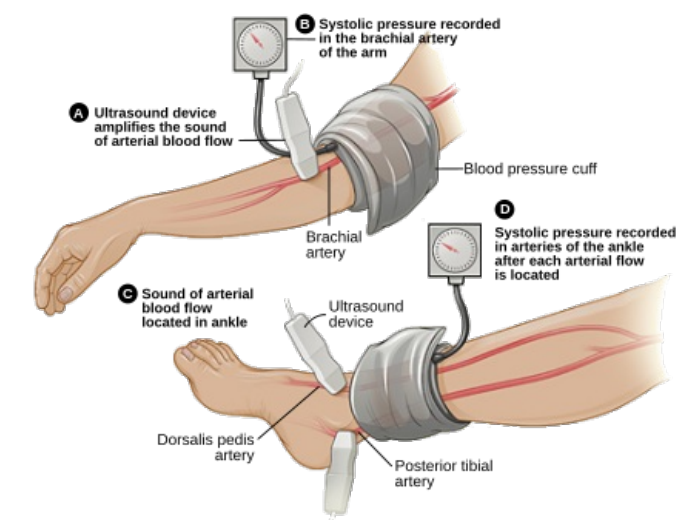
Index evaluation ABI	
normal value	>0,9
stenosis in the area between the aorta and distal arteries	<0,9
critical ischemia (closure)	<0,5

Measurement

Perfusion pressures are determined using Doppler ultrasound examination or oscillometric measurements using the ABI system.

The Doppler ABI determination and the oscillometric ABI determination are not interchangeable. 'Oscillometric examination' overestimates low ABI values and underestimates high ABI ^[3] Oscillometric examination has a high negative predictive value. ^{[4][5][6]}, it is faster and its results do not depend on the experience of the investigator. It is, therefore, more suitable as an *ICHDK screening method* in primary care.

Discrepancies between the results increase at the ABI cut-off values (especially in incompressible arteries with calcinosis). In these patients, the method of choice is the **Doppler measurement** of the ankle pressure.



determination of ABI using a pencil ultrasound probe

References

Related articles

- Chronic ischemic disease of the lower limbs
- Ratsch's test

Resources

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