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A Systematic Review to Determine an Evidence Based, Standardised Protocol for Measuring the Ankle: Brachial Pressure Index

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BACKGROUND

The use of ABPI as a means of estimating lower-limb circulatory sufficiency and Peripheral arterial disease (PAD) is well documented within the literature. By recognising and measuring the signs and symptoms of PAD it is possible to determine when further objective vascular tests are required in order to plan the next stage of management. However there is also considerable variability



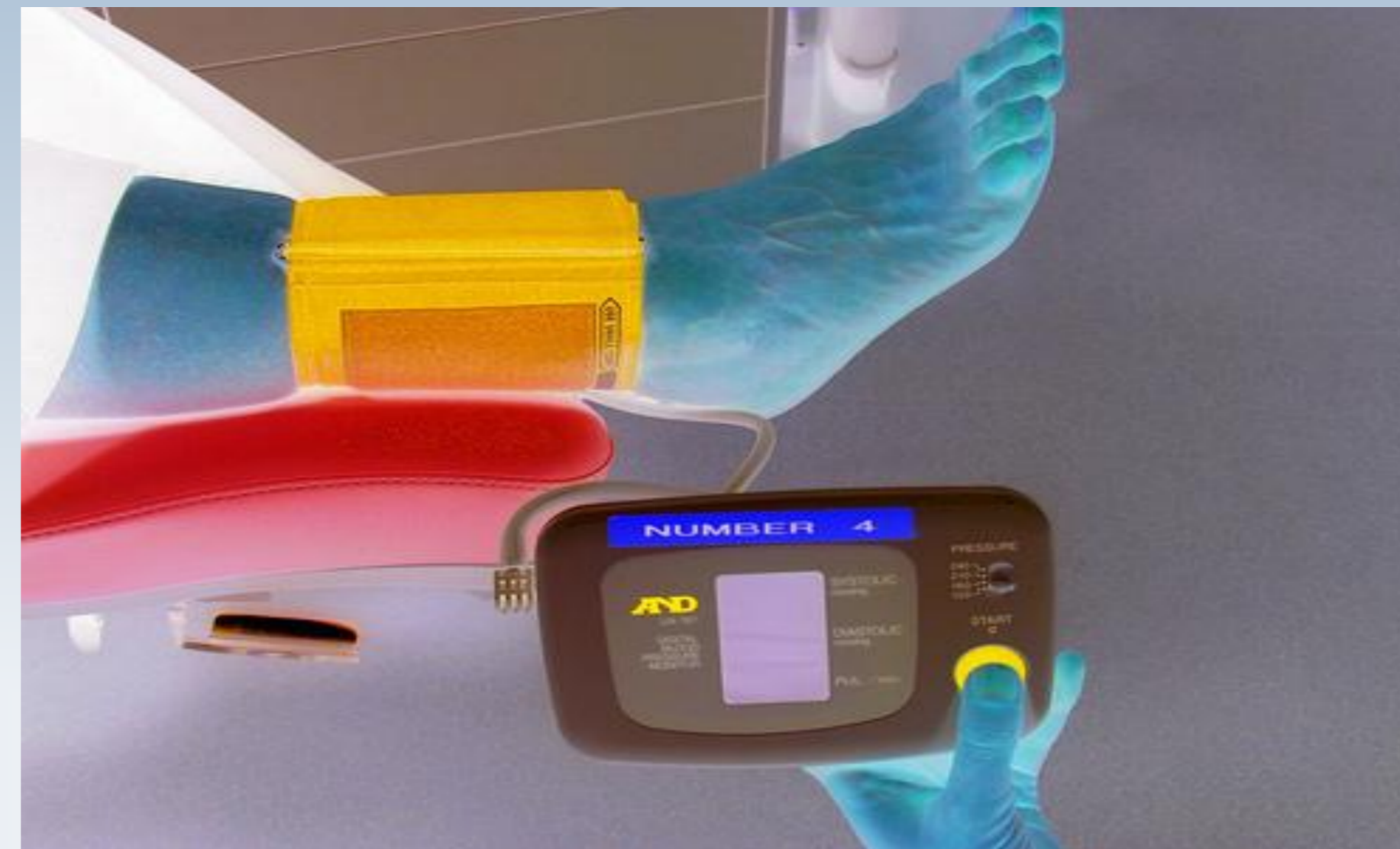
PURPOSE

The purpose of this project was to generate an evidence based protocol for the assessment of the Ankle: Brachial Pressure Index in order that reproducibility, interpretation and intervention decisions could be improved

Overarching factors were that the protocol should be applicable within a variety of health care professions such as Podiatry, District Nursing and General Medical Practice. Secondly that the protocol was relevant to patients suspected of having Peripheral Arterial Disease (PAD) for example via identification of risk factors or the presence of signs and symptoms.

Research Question:

What is the most accurate and repeatable method for the assessment and calculation of ABPI?



ABPI = Mean of Dorsalis Pedis & Posterior Tibial Mean of Brachial

MATERIALS AND METHODS

The review was performed as follows:

- Literature Search of electronic databases using terms derived from research question
- Application of explicit inclusion/exclusion criteria derived from the research question and purpose and based on accepted methodological boundaries.
- Quality review of each included article using modified CASP tool (see Handout) and allocation of methodological quality score (CASP 1998 available at www.phru.nhs.uk/learning).
- Identification of themes within the literature
- Cross comparison of papers in each theme to identify agreement
- Compilation of agreed findings to form protocol / recommendations



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RESULTS

Three themes of variety from the traditional ABPI method were investigated in 8 papers:-

1. The position of the cuff
2. The use of automated devices
3. The mode of calculation

Recommendations were only possible for Theme 3 as there was considerable disagreement amongst papers in themes 1 and 2.



CONCLUSIONS

- Calculating ABPI based on Mean results was reported to reduce inter-rater and intra-rater variability and should be considered a realistic development to routine practice (accurate and repeatable)
- Further primary investigation is needed to determine the comparative reliability of doppler, oscillometric and photoplethysmographic methods of measuring ankle pressures
- The lack of consistency amongst papers and the low volume of research into all aspects of the test meant that it was not possible to generate a full evidence based protocol.

BIBLIOGRAPHY

- Aboyns et al (2003) 'The intra- and inter-observer variability of ankle-arm blood pressure index according to its mode of calculation.' *The Journal of Clinical Epidemiology* 56 pp 215 – 220
- Benchimol et al (2004) 'Validation of a New Method of Detecting Peripheral Artery Disease by Determination of Ankle-Brachial Index Using an Automatic Blood Pressure Device.' *Angiology* Vol 55 No 2 pp 127 – 134
- Cook D et al (1997) 'The Relation between Systematic Reviews and Practice Guidelines.' *Annals of Internal Medicine* Vol 127 No 3 pp 210 – 216
- Deeks J (2001) 'Systematic reviews of evaluations of diagnostic and screening tests.' *British Medical Journal* Vol 323 pp 157 – 162
- Critical Appraisal Skills Programme (1998) cited at www.phru.nhs.uk/casp/casp.htm accessed 17,11,2005