

IRISH HEART FOUNDATION

COUNCIL ON HIGH BLOOD PRESSURE

STATEMENT ON BLOOD PRESSURE MEASUREMENT

November 23rd - 2001

Conventional blood pressure measurement

- Conventional blood pressure measurement (CBPM) is the most effective screening blood pressure
- White coat hypertension occurs in 20% of individuals with apparent elevation of blood pressure with CBPM and this measurement should not dictate diagnostic or treatment decisions
- Mercury is toxic to the environment and mercury sphygmomanometers should be replaced by accurate alternative devices
- Non-mercury sphygmomanometers are available but have not yet been independently validated
- Two automated devices have fulfilled the accuracy criteria of the British Hypertension Society (BHS) and the Association for the Advancement of Medical Instrumentation (AAMI); these are:

A & D UA 767 monitor
Omron HEM-705CP monitor

- The inflatable bladder of the sphygmomanometer should encircle at least 80% of the arm and preferably the entire arm; a new cuff – the Adjustacuff , which encircles all arms regardless of arm circumference , is now available and is recommended
- If blood pressure is high with CBPM consideration should be given to obtaining 24-hour ambulatory blood pressure measurement (ABPM) before making a diagnostic and certainly before antihypertensive medication is prescribed

Ambulatory blood pressure measurement (ABPM)

- ABPM is a useful technique for obtaining information on blood pressure behaviour away from the medical environment
- ABPM is the most accurate technique for measuring blood pressure provided certain technical procedures are followed and the device used has been validated for accuracy according to the BHS and AAMI protocols
- The most common indications for ABPM are:
 - Identification of white coat hypertension
 - Clarification of borderline hypertension
 - Assessment of resistant hypertension
 - Identification of hypotension
 - Determination of efficacy of drug treatment
 - Determination of duration of effect of drug treatment
 - Identification of nocturnal dipper/non-dipper status
 - Diagnosing and characterising patterns of hypertension in the elderly
 - Diagnosing hypertension in pregnancy

Self measurement of blood pressure (SBPM)

- SBPM can be used for the same indications as for ABPM other than for obtaining nocturnal blood pressures, and SBPM has not been studied as well as ABPM
- Wrist and finger recording devices are not recommended because the influence of arm position on recorded blood pressures makes the accuracy of the measurement questionable
- Only devices which have been independently validated according to the BHS and AAMI protocols should be recommended (most devices on the market have not been validated). The most reliable devices are :
 - A & D UA 767 monitor
 - Omron HEM-705CP monitor

Recommended reading

O'Brien E, Fitzgerald D. The history of blood pressure measurement. *J Human Hypertens* 1994;**8**:73-84

Staessen JA, Byttebier G, Buntinx F, Celis H, O'Brien ET, Fagard R, for the Ambulatory Blood Pressure Monitoring and Treatment of Hypertension Investigators. Antihypertensive Treatment Based on Conventional or Ambulatory Blood Pressure Measurement.: A Randomized Controlled Trial . *JAMA*. 1997;**278**:1065-1072.

Staessen J, Thijs L, Fagard R, O'Brien E, et al Predicting Cardiovascular Risk Using Conventional vs Ambulatory Blood Pressure in Older Patients with Systolic Hypertension. *JAMA* 1999;**282**:539-546

Owens P, Atkins N, O'Brien E. Diagnosis of White Coat Hypertension by Ambulatory Blood Pressure Monitoring. *Hypertension* 1999;**34**:267-272

Fagard RH, O'Brien E, et al. Response to Antihypertensive Therapy in Older Patients With Sustained and Nonsustained Systolic Hypertension. *Circulation* 2000;**102**:1139-1144.

O'Brien E, Coats A, Owens P, et al. Use and, interpretation of ambulatory blood pressure monitoring: recommendations of the British Hypertension Society. *BMJ* 2000; **320**: 1128-34

O'Brien E, Waeber B, Parati G, Staessen J, Myers M on behalf of the European Society of Hypertension Working Group on Blood Pressure Monitoring. Blood pressure measuring devices: recommendations of the European Society of Hypertension. *BMJ* 2001;**322**:531-6