

BAPN Standards for Hypertension in Paediatric Renal Transplant Recipients

Measurement of BP in children

Standard 1: Blood Pressure should be measured using auscultation and a calibrated aneroid sphygmomanometer. [1,2; Grade of recommendation: 1C and 1D]

Standard 2: In younger children, if auscultation proves to be difficult, BP may be measured using a 'doppler and cuff' method, as this allows accurate measurement of systolic BP. [3; Grade of recommendation: 2B]

If oscillometric instruments are used then any BP measurement above recommended levels, stated below, should be rechecked using auscultation, or 'doppler and cuff' for younger children. [1; Grade of recommendation: 1C]

Organisation audit standard:

Is an aneroid sphygmomanometer available for use?

Are BP instruments used regularly being serviced/calibrated at least annually?

Target blood pressure

Standard 3: The systolic blood pressure should be maintained at <90th percentile for age, gender and height. (+1.28SD= 90th percentile) or ≤ 130/- mmHg, whichever is lower. [1; Grade of recommendation: 1C]

Audit Measure: At least 90% of systolic blood pressure measurements should be maintained below the 90th percentile or ≤ 130/- mmHg, whichever is lower, over two consecutive clinic visits. Targeting lower BP levels well below the 90th percentile is desirable although current evidence does not indicate how 'low' would be optimum.

Diagnosis of Hypertension

Systolic blood pressure >130/- mmHg or above the 90th percentile (whichever is lower)

To determine if the child has true hypertension the following methodologies may be used:

- a. 24 hour ABPM for children over 5 years of age (ideal)

- b. Consider day case admission for children <5 years old to perform serial BP measurements
- c. Repeat BP measurements in clinic
- d. Serial BP measurements at the child's General Practitioner surgery (unlikely to be successful in children < 5 years old)
- e. Serial BP measurements at home where calibrated equipment is available

Standard 4: Identify if the child is above the target blood pressure as soon as possible

Management of hypertension

If hypertension is confirmed, commence anti-hypertensive therapy. The management plan must be clearly documented, including date of next review to ensure the target blood pressure has been achieved.

Standard 5: All patients should have a documented management plan.

Systolic blood pressure >130/- mmHg or above the 90th percentile (whichever is lower), in a child who is already on antihypertensive therapy:

If hypertension is diagnosed, optimize dose of current antihypertensive(s) or start further agent if already on maximal dose(s). The management plan must be clearly documented, including date of next review to ensure the target blood pressure has been achieved.

Standard 6: For all patients with systolic blood pressure above the 90th percentile or >130/- mmHg (whichever is lower) there should be documentation of

- a. the clinician's impression of the patient concordance
- b. evidence of advice given regarding lifestyle changes such as weight, exercise and healthy diet
- c. the target blood pressure

References:

1. National High Blood Pressure Education Program Working Group on High Blood Pressure in Children and Adolescents. The Fourth Report on the Diagnosis, Evaluation and Treatment of High Blood Pressure in Children and Adolescents. *Pediatrics* 2004; 114:555–576.
2. Canzanella VJ, Jensen PL, Schwartz GL. Are aneroid sphygmomanometers accurate in hospital and clinic settings. *Arch Intern Med* 2001; 161: 729-731.
3. Elseed AM, Shinebourne EA, Joseph MC. Assessment of techniques for measurement of blood pressure in infants and children. *Arch Dis Child* 1973; 48: 932–936.