SHORT REPORT

Early detection of hypertension in general practice

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We suggest a formula to aid diagnosis of hypertension in children and adolescents in general practice. The values obtained from this formula were found to correlate well with the values in the charts recommended by the Update of 1987 Task Force report on high blood pressure in children and adolescents.

The relevance of childhood blood pressure measurement in paediatric health care and development of adult essential hypertension has undergone substantial conceptual change during the past two decades.¹ The measurement of blood pressure is now firmly established as an important component in routine paediatric physical examination. Early detection of hypertension in the paediatric age group helps to introduce therapeutic and control measures.

DEFINITION

Hypertension is defined as average systolic or diastolic blood pressure greater than or equal to 95th centile for age and sex measured on at least three separate occasions.

- Systolic blood pressure is indicated by the appearance of the 1st Korotkov sound.
- Diastolic blood pressure is indicated by the disappearance of the 5th Korotkov sound.

BACKGROUND

The normative blood pressure charts for children and adolescents, based on height percentile, age, and gender, formulated by the Update of 1987 Task Force report on high blood pressure in children and adolescents are used worldwide.¹

Formulae for parameters such as height, weight,² body surface area, and drug dosage (Salisbury rule)³ are widely used in paediatrics. Mnemonics for values of the 5th and 50th centile for systolic blood pressure for recognition of hypotension in emergency situations have been recommended.⁴ A formula for recognising hypertension in children is not available.

Figure 1 Systolic blood pressure.

Figure 2 Diastolic blood pressure.

METHODS

We explored the possibility of deriving suitable formulae for detection of hypertension in children and adolescents. Values of the 95th centile of blood pressure, corresponding to the 50th centile for height in both sexes, were analysed using the principle of regression analysis using the SPSS package. The analysis was carried out for both the diastolic and systolic blood pressure values. The formulae, modified to facilitate recall, are as follows:

- Systolic blood pressure (95th centile)
1–17 years = $100 + (\text{age in years} \times 2)$
- Diastolic blood pressure (95th centile)
1–10 years = $60 + (\text{age in years} \times 2)$
11–17 years = $70 + (\text{age in years})$.

The values obtained from the above formulae were compared with the values from the 1987 Update on high blood pressure in children and adolescents (figs 1 and 2) and were found to correlate well across all ages from 1 to 17 years. Physicians can use this simple formula effectively for quick recognition of hypertension in general practice.

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