Diagnostic Approach in the Hypertensive Child

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The extend to which investigation is warranted depends on the severity and the persistence of the hypertension and the circumstances in which it is detected. There are clearly important differences between mild hypertension identified incidentally in an asymptomatic child and severe hypertension observed in a patient with clinical symptoms related it. All children with sustained hypertension should undergo some evaluation but the question is how intensively should this be undertaken.

Borderline hypertension requires a careful history with particular emphasis on family history of hypertension and the use of drugs including the contraceptive pill. Some simple additional investigations such as those outlinded in strategy A maybe appropriate.

Mild to moderate hypertension will require more detailed evaluation with particular emphasis on renal disease which is the commonest cause of secondary hypertension in childhood. This degree of hypertension would require strategies A and B at least.

Severe hypertension, namely blood pressure consistently well above the upper end of the normal range with or without target organ involvement would require strategies A and B with other more invasive investigations from within strategy C dependent on the initial results.

Strategies of Investigation of Childhood Hypertension

A	Full blood picture Plasma electrolytes, calcium, urate, cholesterol Blood urea, plasma creatinine Urinalysis
B	Abdominal ultrasound 99Tc DMSA scan or rapid sequence IVU +/- micturating cystourethrogram Peripheral plasma renin and aldosterone 24 hour urine VMA and plasma catecholamines Chest x-ray and ECG
C	Angiography, digital vascular imaging Main and segmental renal vein renin sampling Pharmacological blockade or renin angiotensin system Computerized tomography MIBG scan Vena caval catecholamine sampling Pharmacological catecholamine blockade Urine steroid analysis Steroid suppression tests 2D echocardiogram, cardiac catherization

The particular value of peripheral plasma renin and catecholamine measurements, DMSA and MIBG scans, renal angiography, renal vein renin and vena caval catecholamine sampling is emphasized. Recently the oral captopril test to distinguish between renin dependent and other hypertensive states has proved to be useful in children. Measurements of red cell membrane electrolyte transport also appear to have a role in positively identifying children with essential as opposed to secondary hypertension.

Utilizing this approach a precise diagnosis can be established in the majority of hypertensive children.

New Aspects in the Treatment of Renal Hypertension

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Recent advances in antihypertensive therapy of kidney disease are summarized in this report based on the experience given by participants of the Second International Symposium on Hypertension in Children and Adolescents (Heidelberg/FRG, October 11-12, 1985). The report deals mainly with renovascular lesions and chronic renal failure (CRF). Renovascular surgery has recently taken profit by new techniques of revascularisation, intraluminal dilatation and embolisation. In CRF medical therapy is best started with a diuretic or a beta-adrenergic blocker, eventually added by a vasodilator and a centrally acting agent. More potent drugs (captotril, calcium antagonists) are applicable also in presence of advanced CRF. Strict control of blood pressure may avoid the appearance of cardiovascular complications and delay the rate of deterioration of CRF. However, side effects by drugs remain a serious problem. Under dialysis drug dosage can usually be reduced by increasing ultrafiltration. In general continuous peritoneal dialysis allows a better blood pressure control than haemodialysis. Resistant cases are successfully treated by haemofiltration. After transplantation the therapeutic approach is variable, according to the etiology of hypertension (rejection or renal artery stenosis in graft, ischaemia in native kidneys, induced by corticosteroids or cyclosporin).