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**RESEARCH ARTICLE**

# HYPERTENSION FROM BIRTH TILL CHILDHOOD

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**ABSTRACT**

**Objective:** Hypertension is a disease which has a lot of complication as end organ damage, left ventricular hypertrophy and retinal damage so it is very important to diagnose it early and treat it to minimize its complication.
**Data Summary:**
**Data Sources:** medical text books, medical journals, medical websites which have updated research
**Study selection:** Systematic reviews that addressed Hypertension & studies that addressed impact of it on different organs and role of physician in prevention and management.
**Data Extraction:** Special search was done at midline with key words (Hypertension) in the title of papers; extraction was made, including assessment of etiology and factors affecting and importance of early treatment to prevent complication
**Data synthesis:** The main result of the review. Each study was reviewed independently , obtained data is rebuilt in new language according to the need of the researcher and arranged in topics through the article.
**Conclusions:** Hypertension is a significant global health issue and a major risk factor for atherosclerosis, leading to the development of cardiovascular diseases. Common etiology in any age group is reno vascular and renal parenchmal diseases, It is essential that education and counseling must then be provided to the family and not just the child so as to enhance motivation and compliance with the proposed treatment strategy.



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## INTRODUCTION

Hypertension is defined as average SBP and/or DBF that is greater than or equal to the 95th percentile for sex, age, and height on three or more occasions (Awazu, 2009). Sustained hypertension in children and adolescents is usually classified as secondary, with a specific potentially correctable cause, or as essential, that is, without an identifiable cause, Definable causes of hypertension are associated with a broad spectrum of diseases. The distribution of causes clearly varies with age Renal parenchymal disorders with renovascular disease, and coarctation of the aorta account for 70% to 90% of all cases (Sorof et al., 2002). A careful history and physical examination will usually identify the cause in most cases, without the need for extensive laboratory or radiological testing. In very young children (<6 years), hypertension is most often the result of such renal parenchymal disease as glomerulonephritis, renal scarring, polycystic kidney diseases, and renal dysplasia. Renal artery stenosis and cardiovascular disorders like coarctation of the aorta. The global epidemic of childhood obesity has been associated with an increased incidence of primary hypertension in adolescence, Obese children have a 3-fold higher risk for developing hypertension compared to non-obese children (Flynn, 2008).

Most children with secondary hypertension have renal parenchymal disease. avariety of glomerular and a few tubular or interstitial disorders may cause hypertension in children and adolescents. Cardiovascular causes of hypertension represent (1-5%) of secondary hypertension Coarctation of the aorta accounts for 2% of secondary hypertension in childhood and adolescence, but accounts for approximately one third of patients seen in the first year of life (Seeman, 2006). Endocrine Abnormalities Associated with Hypertension as Tumors secreting vasoactive substances (catecbolamines, rennin), Pheochromocytoma, paraganglioma, Hypothyroldism and Cushing syndrome (Havekes *et al.,* 2009).

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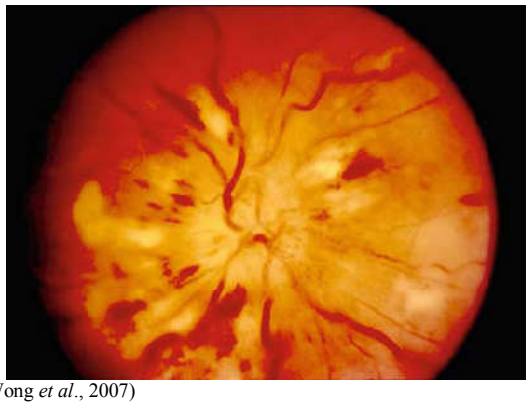
Neonatal Hypertensionis presented by cardiopulmonary symptoms, neurologic disorders, apnea, tachypnea, lethargy, irritability and feeding difficulties (Dionne *et al.,* 2012). Initial laboratory evaluation by Urinalysis, serum electrolytes, calcium, creatinine, blood urea nitrogen, arterial blood gas analysis , Doppler renal ultrasound and echocardiogram *while* Symptoms of hypertension in children include headaches, epistaxis, tiredness or excessive perspiration. (Dionne *et al.,* 2012) The specific evaluation of primary hypertension is designed to determine the presence of cardiovascular risk factors, such as hyperlipidemia and insulin resistance, and to assess any end-organ damage to the heart or kidneys**,** When the history, physical examination or screening laboratory evaluation is abnormal, further evaluation should be directed by those results (Ellis, 2009).

Long term complication include LVH, Retinal abnormalities, Renal damage, Carotid Artery Intima-Media Thickness and Microalbuminuria (Awazu, 2009). Treatment of hypertension include Lifestyle Measures, none pharmacologic treatment and pharmacologic treatment that include ediuretics, centrally acting agents, beta blockers, direct vasodilators, calcium channel blockers, angiotensin converting enzyme inhibitors and angiotensin receptor blockers (Ellis, 2009).

**Table. Most Common Cause of Hypertension by Age Group**

| Most Common Cause of Hypertension by Age Group | |
|---|---|
| < 1 Month | > 6-10 Years |
| Renal arterial thrombosis | Renal parenchymal disease |
| Coarctation of the aorta | Renovascular disease |
| Congenital renal disease | Essential hypertension |
| Bronchopulmonary dysplasia | |
| >1 Month to < 6 Years | > 10-18 Years |
| Renal parenchymal disease | Essential hypertension |
| Coarctation of the aorta | Renal parenchymal disease |
| Renovascular disease | Renovascular disease |

(Sorof *et al.,* 2002)



(Wong *et al*., 2007)

**Severe hypertensive retinopathy in a child with longstanding untreated hypertension showing arteriolar narrowing, hemorrhages and exudates and papilledema (Wong *et al.,* 2007) Algorithm for evaluation of hypertension in children and adolescents**

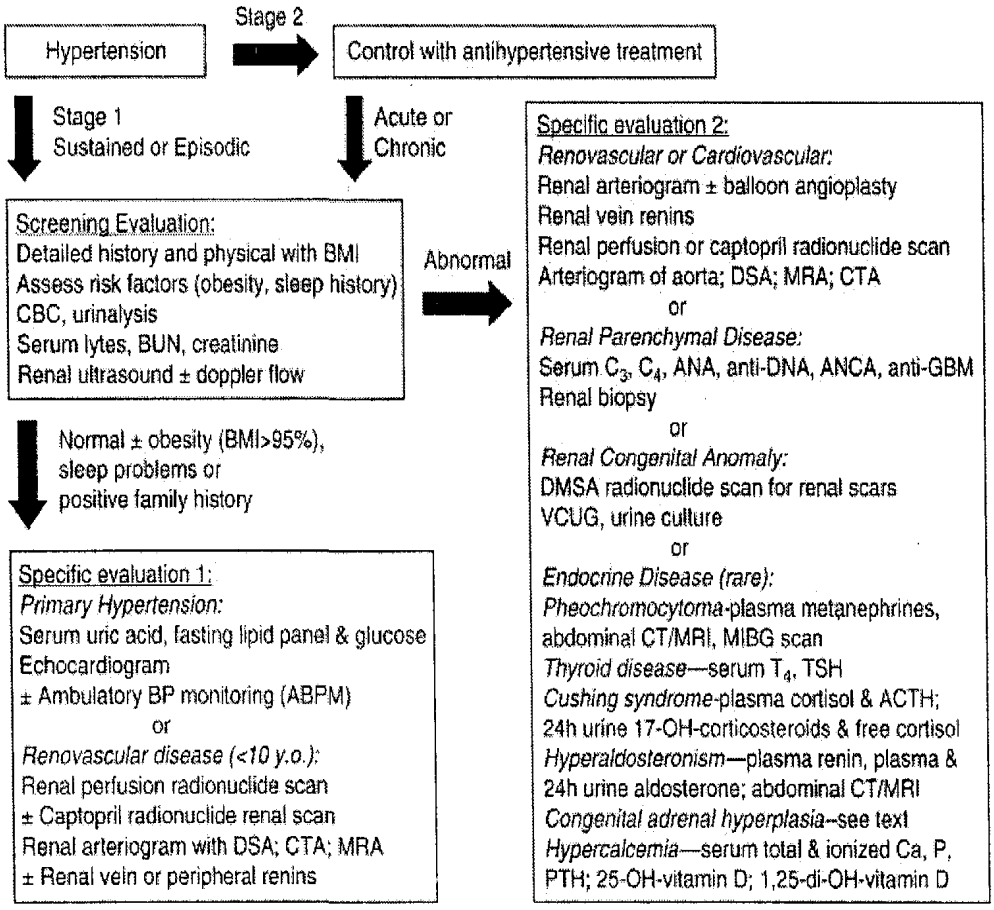


**Table. Classification of hypertension in children and adolescents, with measurement frequency and therapy recommendations**

| Stage | SBP or DBP percentile | Frequency of BP measurement | Therapeutic lifestyle changes | Pharmacologic therapy |
|---|---|---|---|---|
| Normal | Less than90th | Recheck at next scheduled physical examination | Encourage healthy diet, sleep and physical activity | - |
| Prehypertension | 90th to Less than 95th or if BP exceeds120/80 mm Hg, even if below 90th percentile up to <95th percentile | Recheck in 6 months | Weight management counseling if overweight, introduce physical activity and diet management | None unless compelling indications such as CKD, diabetes mellitus, heart failure, LVH |
| Stage 1 hypertension | 95th percentile to the 99th percentile plus 5 mmHg | Recheck in 1–2 weeks or sooner if the patient is symptomatic; if persistently elevated on 2 additional occasions, evaluate or refer to source of care within 1 month | Weight management counseling if overweight introduce physical activity and diet management | Initiate therapy based on indications in Table 2 or if compelling indications as above |
| Stage 2 hypertension | 99th percentile plus 5 mmHg | Evaluate or refer to source of care within 1 week or immediately if the patients symptomatic | Weight management counseling if overweight introduce physical activity and diet management | Initiate therapy |

**Abbreviations:** CBC clinical blood count; BUN, blood urea nitrogen; DSA, digital subtraction angiography; MRA, magnetic resonance angiography; $C_s$ and C* complements 3 and 4; ANA, anti-nuclear antibody; anti-DNA, anti-double stranded desoxynudek acid antibody; ANCA, anti-neutrophil cytoplasmic antibody; artti-GBM, anti-glomerular basement membrane antibody; DMSA, dimercapto-succinic acid; VCUG, voiding cystourethrogram; DSA, digital subtraction angiography CTA, computed tomographic angiography; MRA, magnetic resonance angiography; MIBG, rnetafodobenzylguanidine; T^,, thyroxine;TSH, thyroid stimulating hormone; ACTH, adrenocorticotrophic hormone; OH, hydroxy; DOC deoxycorticosterone; Ca, calcium; P, phosphorus; PTH, parathyroid hormone (Ellis, 2009).

BP, blood pressure; CKD, chronic kidney disease; DBP, diastolic blood pressure; LVH, left ventricular hypertrophy; SBP, systolic blood pressure. aFor sex, age, and height measured on at least three separate occasions; if systolic and diastolic categories are different, categorize by the higher value This occurs typically at 12 years old for SBP and at 16 years old for DBP. cMore than one drug may be required. dParents and children trying to modify the eating plan to the DASH eating plan (Appel *et al.,* 19) could benefit from consultation with a registered or licensed nutritionist to get them started. (Ellis, 2009)

## REFERENCES


Awazu, M. 2009. PediatrNephrol. Epidemiology of Hypertension, etiology, diagnosis and treatment. *Pediatr. Nephrol.,* 235-252.

Dionne, J.M., Ahitbol, C.L. and Fly mi. I.T. 2012. Hypertension in infancy: diagnosis, management and outcome. *Pediatr Nephrol.,* Jan 27(1): 17-32.

Ellis, D. 2009. Managment of the hypertensive child, Pediatric Nephrology Sixth Completely Revised, Updated and Enlarged Editionl SBN: 978-3-540-76327-7.

Flynn, J.T. 2008. Pediatric hypertension: Recent trends and accomplishments, future challenges. *Am. J. Hypertens.,* 21: 605-612.

Havekes, B., Romijn, J.A., Eisenhofer, G. *et al.* 2009. Update on pediatric pheochromocytoma. *Pediatr. Nephrol*., 24:943-950.

Seeman, T. 2006. Department of Paediatrics, 2nd Faculty of Medicine, Charles University and General Teaching Hospital, Prague, Arterial Hypertension In Children and Adolescents.

Sorof, J.M., Cargo, P., Graepel, J., Humphrey, D., King, E., Rolf, C. and Cunningham, R.J. 2002. Beta-blocker/thiazide combination for treatment of hypertensive children: a randomized double-blind, placebocontrolled trial. *Pediatr. Nephrol*., 2002; 17:345-350.

Wong, T.Y. and Mitchell, P. 2007. The eye in hypertension. *Lancet*, 369:425-435.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