Hypertension In Children And Adolescents | 33bb58e18136429d528ae8714fa25af4

Child and Adolescent Mental Health
HYPERTENSION IN CHILDREN
Endocrine Hypertension
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Evolution of Cardio-Metabolic Risk from Birth to Middle Age
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This book aims to present a comprehensive classification of hypertensive phenotypes based on underlying target organ involvement. Particular emphasis is placed on review and assessment of clinical presentation, pathophysiologic mechanisms, and possible specific therapeutic options for each hypertension phenotype. Several of these phenotypes are well known and well described in the literature, such as prehypertension, white coat and masked hypertension, isolated systolic hypertension, renovascular hypertension, endocrine hypertension, pediatric hypertension, and gestational hypertension. Other hypertension phenotypes, however, are not widely recognized, being reported only in special reviews; examples include hypertension associated with renal calculus disease and other rarer causes such as Turner syndrome, herbal and medicinal compounds, and
pharmacologic agents. A detailed account of the various causes of monogenic hypertension is also included. Finally, a section is devoted to general aspects of hypertension, including the significance of blood pressure indices, the natural course of untreated and treated hypertension, hypertension mechanisms, genetics, and guidelines for blood pressure control.

HYPERTENSION IN CHILDREN

Martin Luther - Indulgences - Venice - Knights of St. John

Endocrine Hypertension

"The combined results of the 2016-2019 Canadian Health Measures Survey (CHMS) indicate that the average resting blood pressure of children and youth aged 6 to 19 was 96/62 mmHg. Among this group, 94.3% had a measured blood pressure that was considered normal and 5.7% had results considered borderline or elevated (data not shown). Reliable estimates of hypertension in children are scarce, however studies have shown that children's hypertension has increased over the past decade partially due to an increase in childhood obesity. A systematic review estimated that the global prevalence of childhood hypertension in 2015 ranged from 4.3% among children aged 6 years to 3.2% among those aged 19 years and peaked at 7.9% among those aged 14 years"--Page 3.
Stem cell research is one of the fascinating areas of contemporary biology, but, as with many expanding fields of scientific inquiry, research on stem cells raises scientific questions as rapidly as it generates discoveries. Research on stem cell treatment continues to advance knowledge about how an organism develops from a single cell and how healthy cells replace damaged cells in adult organisms. The most important potential application of human stem cells is the generation of cells and tissues that could be used for cell-based therapies, especially oncology. The Faculty of Medicine, Universitas Sumatera Utara, collaborated with the center of excellence and innovation (Pusat Unggulan Inovasi /PUI). The Stem Cell center of the Universitas Sumatera Utara (USU) organized an International Conference. The International Stem Cell and Oncology Conference (ISCOC) 2017 was a comprehensive academic conference in the field of stem cell and oncology research and also tropical medicine and related scientific topics. We expect Stem Cell Oncology will benefit academics and practitioners in the field of health sciences in Indonesia. This is an Open Access ebook, and can be found on www.taylorfrancis.com.

Handbook of Childhood and Adolescent Obesity

In the present volume, we collected state-of-the-art chapters on diagnosis, treatment, and social implications. The first section describes diagnostic processes. It describes a reevaluation of projective techniques, a new clinical tool in psychotraumatology, the foundations of the framing technique, and an overview on integrative
approaches. The second section focuses on new developments in the field with special emphasis on culture-specific contexts. From parenting of adolescents in India to the influence of poverty on mental health issues in Mexico, as well as the use of marijuana and Internet addiction, some of the most important fields are highlighted. The third section concentrates on therapy. It shows how to react to bullying and reviews the use of antidepressants in children and adolescents.

Evolution of Cardio-Metabolic Risk from Birth to Middle Age

Chronobiology

Blood Pressure of Children and Adolescents, 2016-2019

Pediatric Hypertension

Cardiovascular Risk Factors in Children

Several genetic, biochemical and radiologic discoveries have impacted the management of endocrine hypertension, while surgical procedures have revolutionized treatment of patients with endocrine hypertension. This text contains the proceedings of a 2001 workshop on the topic.

Epidemiology of Obesity in Children and
A state-of-the-art review of research findings that contribute to an understanding of hypertension and the best measures for its prevention and control, whether in individual patients or entire populations. Noting that elevated blood pressure is a massive health problem in almost every country, the report argues that programs for hypertension control should be an integral part of all national health care systems. With this goal in mind, the report aims to help policy makers appreciate the significance and complexities of hypertension, understand the options available for control and then select the most appropriate mix of interventions. Details range from recommended procedures for obtaining an accurate assessment of blood pressure through advice on the best drugs for first-line treatment of hypertensive patients to a discussion of ways to educate populations about relevant lifestyle changes. Throughout the report, population-based and individual approaches are presented as complementary, synergistic strategies for hypertension control. To assist physicians as well as policy makers, the report includes abundant recommendations based on the best scientific evidence for the management of different patient groups. A section on the clinical assessment of the hypertensive patient explains the components of a coherent step-wise diagnostic process involving history taking physical examination and laboratory investigation. Included are an assessment of the most suitable drugs for first-line treatment and guidelines for developing management plans for mild hypertension, moderate and severe hypertension, resistant hypertension and
hypertensive emergencies. In view of the need to assure that scarce resources are invested wisely, the report also discusses and compares the cost-effectiveness of different management strategies.

Hypertension in Children and Adolescents

Strange and Schafermeyer's Pediatric Emergency Medicine, Fifth Edition

Screening for Hypertension in Children and Adolescents to Prevent Cardiovascular Disease

The importance of hypertension in children and adolescents is becoming increasingly recognized by physicians and scientists in the 21st century. However, in contrast to the attention that hypertension has received in the adult population for the past three decades since the first Joint National Committee (JNC) report, research and clinical knowledge that involves hypertension in children is still very much in its own childhood. Pediatric Hypertension, edited by Drs. Portman, Sorof, and Ingelfinger, is undoubtedly the most up-to-date and clinically relevant contribution to the field of hypertension in children available because it brings together the numerous pathophysiologic, diagnostic, and therapeutic advances in the evaluation of high blood pressure in infants, children, and adolescents. The editors have carefully organized their volume into sections that cover blood pressure regulation in infants and children, blood pressure measurement issues, pat-
physiology and clinical assessment for essential and secondary forms of hypertension during childhood, and nonpharmacologic and pharmacologic approaches to the treatment of hypertension in children.

**Hypertension: A Companion to Braunwald's Heart Disease E-Book**

This is a newly updated second edition of Blood Pressure Monitoring in Cardiovascular Medicine and Therapeutics. William B. White, MD, and a panel of highly experienced clinicians critically review every aspect of out-of-office evaluation of blood pressure. The world-class opinion leaders writing here describe the significant advances in our understanding of the circadian pathophysiology of cardiovascular disorders.

**Screening for Hypertension in Children and Adolescents to Prevent Cardiovascular**

This book fifth edition of Pediatric Nephrology has been important advances of the mechanisms and management of various renal disorders in children have taken place since the previous edition of this book. These have been incorporated and the contents extensively revised. Several new authors, having many years of clinical and investigative experience in the area of their expertise, have contributed. The chapters on electrolyte and acid-base disorders, nephrotic syndrome, acute kidney injury, urinary tract infection, tubulopathies, chronic kidney disease, renal replacement therapy, voiding disorders and neonatal renal problems have been expanded and provide most recent information,
particularly concerning management of related diseases. A small section on prevention of kidney diseases has been added. The emphasis remains on renal function and its derangement, diagnostic evaluation and treatment of important conditions.

Pediatric Nephrology

Blood Pressure in Children and Adolescents

The regular alternation of light and dark affects not only human biological systems, but also the social organization of behavior. The effect of such light modes is manifested in periodic changes in physiological functions and biological rhythms exhibited at every level of life. The book discusses some of the specificities of the circadian rhythms in living organisms and mentions aspects of the control of circadian rhythms as well as experimental and clinical cases that are closely related to circadian disruption. This book can evoke interest in many researchers who want to use this information for the advancement of their research towards a better understanding of the biological time structure.


The field of pediatric hypertension has undergone important changes in the time since the second edition of Pediatric Hypertension published. Much new information on hypertension in the young has become available. Previous chapters have been fully
revised and new chapters have been added to cover important topics of recent interest such as consensus recommendations, the prevalence of hypertension in the young due to the obesity epidemic, studies of antihypertensive agents, and ambulatory blood pressure monitoring. Pediatric Hypertension, Third Edition is a comprehensive volume featuring 38 chapters covering the breadth of the current knowledge. It is divided into four sections: Regulation of Blood Pressure in Children; Assessment of Blood Pressure in Children: Measurement, Normative Data, Epidemiology; and Hypertension in Children: Predictors, Risk Factors, and Special Populations; Evaluation and Management of Pediatric Hypertension. Filled with the most up-to-date information, Pediatric Hypertension, Third Edition is an invaluable resource for clinicians and researchers interested in childhood hypertension.

Hypertension in Children and Adolescents

This book is devoted to hypertension in children and adolescents, a clinical issue that - thanks to the strides made in several areas of pathophysiological and clinical research - has received growing interest in cardiovascular medicine over the last several years. Given the increasing prevalence of hypertension in children and adolescents, this book represents an important and useful tool to address what has become a significant public health issue. It covers a diverse range of topics, from advances in the definition of hypertension and the identification of new risk factors, to current treatment strategies. The book also presents an overview of the latest findings, including the clinical significance of
isolated systolic hypertension (ISH) in youth, the importance of out-of-office and central blood pressure measurement, new methods for assessing vascular phenotypes, and clustering of CV risk factors. Gathering contributions by international experts and pursuing a practice-oriented approach, the book offers a valuable tool for cardiologists, pediatricians and nephrologists, as well as general practitioners.

Prehypertension and Cardiometabolic Syndrome

This book sheds new light on the management of patients with borderline cardiovascular risk factors in order to prevent their progression to end organ damage. The book stimulates discussion of this poorly understood condition and lays the groundwork for developing recommendations and guidelines. While the diagnostic and therapeutic approach to full-blown diabetes, hypertension, dyslipidemia and obesity is well defined, there is still a lack of clear understanding and guidelines as far as patients with borderline conditions - especially when multiple - are concerned. Moreover, end-organ damage depends on several factors, including genetic factors, making it difficult to predict its extent. As such, the gradual transition from a healthy subject to one with functional hemodynamic changes, and then one with structurally asymptomatic changes and lastly to overt disease needs further investigation. In order to address these knowledge gaps, the book covers a broad variety of topics, making it a valuable tool for identifying which asymptomatic subjects could profit from being appropriately screened and at
what stage. Furthermore it offers insights into better treating these patients to prevent their progression to overt disease. The book appeals to cardiologists, primary care physicians and all those healthcare professional looking to optimize the management of these complex and often undiagnosed cases.

Treatment of Hypertension in Children and Adolescents

Concise, current, need-to-know coverage of emergency medicine in children - presented in full color Endorsed by the American College of Emergency Physicians "a comprehensive and current resource for anyone who cares for children in an acute setting, from the office to the emergency department. Its presentation is straightforward, and the information is easy to read and assimilate. It will be a valuable resource for those in the field of pediatric emergency medicine as well as other practitioners who occasionally care for sick children."—JAMA (reviewing an earlier edition) This clinically-focused guide covers the entire field of pediatric emergency medicine. Featuring a strong focus on practical need-to-know information Pediatric Emergency Medicine, Fifth Edition is bolstered by numerous full-color images, bulleted High-Yield Facts at the beginning of each chapter, nearly 100 diagnostic and treatment algorithms, and treatment tables with drug dosages. Endorsed by the American College of Emergency Physicians, this book is perfect for use in the emergency department or the pediatric clinic. FEATURES • Chapters open with bulleted High-Yield Facts, followed by just enough pathophysiology for
understanding, and continue with a focus on what needs to be done to protect and save the child. Broad scope spans the full spectrum of pediatric emergencies -- from trauma care to psychosocial emergencies. NEW CHAPTER on Brief Resolved Unexplained Events (BRUE) • Opens with an important symptom-based section of Cardinal Presentations that familiarizes you with crucial life-saving protocols • Covers all major categories of disease that present in children on an urgent or emergent basis. If you are in need of a very readable and easily accessible, evidence-based text written to help you provide high quality emergency medical care to children, your search ends here.

Screening for Hypertension in Children and Adolescents to Prevent Cardiovascular Disease: Systematic Review for the U. S. Preventive Services Task Force

Here is an extensive update of Pediatric Nephrology, which has become the standard reference text in the field. It is global in perspective and reflects the international group of editors, who are well-recognized experts in pediatric nephrology. Within this text, the development of kidney structure and function is followed by detailed and comprehensive chapters on all childhood kidney diseases.

Screening for Hypertension in Children and Adolescents

Stem Cell Oncology
That precursors of adult coronary artery disease, hypertension, and type II diabetes begin in childhood have been clearly established by the Bogalusa Heart Study. This unique research program has been able to follow a biracial (black/white) population over 35 years from childhood through mid-adulthood to provide perspectives on the natural history of adult heart diseases. Not only do these observations describe trajectories of cardio-metabolic risk variables leading to these diseases but provide a rationale for the need to begin prevention beginning in childhood. The trajectories of the burden of cardio-metabolic risk variables in the context of their fetal origin and chromosome telomere dynamics provide some insight into the metabolic imprinting in utero and aging process. The observed racial contrasts on cardio-metabolic risk variables implicate various biologic pathways interacting with environment contributing to the high morbidity and mortality from related diseases in our population. To address the seriousness of the onset of cardiovascular disease in youth, approaches to primordial prevention are described focusing on childhood health education as an important aspect of Preventive Cardiology.

**Pediatric Hypertension**

A parent’s guide from “one of the most reliable, respected health resources that Americans have” (Publishers Weekly). Drawing from the collective wisdom of pediatric experts at Mayo Clinic, ranked #1 on US News & World Report’s 2020-2021 Best Hospitals Honor Roll, Mayo Clinic Guide to Raising a Healthy Child addresses key questions and concerns
many parents have about the preschool and school-age years. In this book, parents learn what to expect in the lively, wonder-filled time between ages 3 and 11. They’ll find answers to family dilemmas such as feeding a picky eater, resolving sleep problems, addressing bullying, treating common injuries and illnesses, and coping with complex health care needs. Experts discuss what it takes to prepare a child for a rich and meaningful adult experience. This book is intended to be a companion manual for navigating those early to middle childhood years, offering encouragement and trusted advice from some of the best experts around, and helping your family find success. The book is divided into 6 sections: · Section 1 addresses growth and development · Section 2 focuses on health and safety · Section 3 discusses important topics related to emotional wellbeing · Section 4 covers common illnesses and concerns · Section 5 is devoted to special circumstances in raising a child · Section 6 provides tips and guidance creating a healthy family unit

Hypertension Control

The third edition of Hypertension: A Companion to Braunwald's Heart Disease, by Drs. George L. Bakris and Matthew Sorrentino, focuses on every aspect of managing and treating patients who suffer from hypertensive disorders. Designed for cardiologists, endocrinologists and nephrologists alike, this expansive, in-depth review boasts expert guidance from contributors worldwide, keeping you abreast of the latest developments from basic science to clinical trials and guidelines. Features expert guidance from worldwide contributors in cardiology,
endocrinology, neurology and nephrology. Covers behavior management as an integral part of treatment plans for hypertensives and pre-hypertensives. Covers new developments in epidemiology, pathophysiology, immunology, clinical findings, laboratory testing, invasive and non-invasive testing, risk stratification, clinical decision-making, prognosis, and management. Includes chapters on hot topics such as hypertension as an immune disease; sleep disorders including sleep apnea, a major cause of hypertension; a novel chapter on environmental pollution and its contribution to endothelial dysfunction, and more! Equips you with the most recent guidelines from the major societies. Updates sourced from the main Braunwald's Heart Disease text. Highlights new combination drug therapies and the management of chronic complications of hypertension.

**Pediatric Nephrology**

Despite adults’ best preventive efforts, childhood obesity is on the rise in most areas of the world, and with it the prevalence of Type 2 diabetes, hypertension, cardiovascular disease, and other formerly adult-onset conditions. Epidemiology of Obesity in Children and Adolescents takes the global ecological approach that is needed to understand the scope of the problem and its multiple causes and mechanisms, and to aid in developing more effective prevention and intervention programs. In the book’s first half, experts present a descriptive summary of youth obesity trends in ten world regions, broken down by age group, gender, socioeconomic status, and risk
factors. Complementing these findings, part two reviews the evidence base regarding the variables, separately and in combination, having the most significant impact on young people’s development of obesity, including: • Genetic and nutrigenomic factors. • Environmental and psychosocial factors, such as family shopping and eating habits and access to healthful foods. • Neuroendocrine regulation. • Prenatal and neonatal factors (e.g., gestational diabetes of the mother). • Dietary factors, from nutrient content to young people’s food preferences. • Physical activity versus sedentary behavior. Epidemiology of Obesity in Children and Adolescents is necessary reading for the range of professionals involved in curtailing this epidemic, including public health specialists, epidemiologists, pediatricians, nurses, nutritionists, psychologists, health educators, and policymakers.

“A STUDY ON BLOOD PRESSURE LEVELS IN ADOLESCENT SCHOOL GOING CHILDREN IN CHITTOOR DISTRICT OF ANDHRA PRADESH”

Focusing on common pediatric conditions seen in primary care settings, this text provides novice, expert, and student nurse practitioners with increased knowledge on the most up to date recommendations about common childhood diseases and conditions. Health promotion and maintenance, child development, and family-centered care are consistently featured in each chapter, emphasizing the need to holistically care for a child based on their specific background and condition. Growth and developmental concepts are grounded in evidence-based research to help practitioners appreciate the physiologic and
cognitive differences in children along with diverse community and cultural aspects of care. User-friendly information is consistently organized in outline/bulleted format to facilitate speedy access to vital knowledge. Organized by body system, each chapter provides the reader with useful information such as the etiology, epidemiology, clinical manifestations, physical findings, diagnostic tests, differential diagnosis, treatment, follow-up and complications, and family education. Case scenarios explore each topic further and include questions and answers that help the clinician choose the best intervention for the patient and their family. Key Features: Delivers comprehensive, evidence-based practice pediatric guidelines for experienced and novice clinicians Stresses the importance of the nurse’s role in pediatric health promotion Written in outline/bulleted format for speedy access to key information Contains abundant case studies and related Q&As to determine the best intervention Includes a full-color image bank of dermatological conditions

High Blood Pressure in Children and Adolescents

Exam. Survey, as well as revised blood pressure tables that include the 50th, 90th, 95th, & 99th percentiles by sex, age, & height. Charts & tables.

Pediatric Practice Guidelines

Now, in one comprehensive, easy-to-access volume, this essential handbook lays bare the scope of the growing problem of childhood and adolescent obesity. It goes further, too, examining the impact of the epidemic in terms of its psychological burden, its health consequences, and the available prevention and treatment options. Editors Jelalian and Steele have ensured that the chapters utilize the most up-to-date empirical and clinical knowledge available. This volume provides readers not only raw data, but also a framework for translating findings into effective, efficient practice - assessment, treatment, and prevention. It will be required reading for a host of professionals, from psychologists to social workers and medical practitioners.

Hypertension in Children and Adolescents

Disorders of Blood Pressure Regulation

Arranged in an easy to use format with illustrations & tables, this is a guide to the clinical care of infants, children, & adolescents with hypertension. The text will be ideal for pediatricians, general practitioners, & healthcare providers.

Pediatric Hypertension: Update
Jusqu'à récemment, l'hypertension artérielle était rarement diagnostiquée chez les enfants et n'était pas considérée comme un enjeu important de santé publique dans cette population. Toutefois, la perception de l'importance de la pression artérielle (PA) élevée - même de manière modérée - chez les jeunes a changé car de nombreuses études ont montré qu'elle était associée à des atteintes cardiovasculaires chez les enfants telles que l'hypertrophie cardiaque ventriculaire gauche et l'épaississement de l'intima-media carotidienne. De plus, le niveau de PA tend à persister entre l'enfance et l'âge adulte, ce qui signifie qu'une enfant dont la PA est élevée est à plus haut risque de développer de l'hypertension à l'âge adulte qu'un enfant dont la PA est basse. Une autre raison de s'intéresser à la PA chez les enfants est ± l'épidémie d'obésité : comme l'obésité est associée à une PA élevée, la crainte existe que la

**Pediatric Hypertension**

The purpose of this systematic evidence review is for the U.S. Preventive Services Task Force (USPSTF) to update its recommendation on screening for high blood pressure in children and adolescents to prevent cardiovascular disease. In 2003, the USPSTF found poor evidence that routine blood pressure measurement accurately identifies children and adolescents at increased risk for cardiovascular disease, and poor evidence to determine whether treatment of elevated blood pressure in children or adolescents decreases the incidence of cardiovascular disease. As a result, the USPSTF could not determine the balance of benefits and harms of routine screening for high blood
pressure in children and adolescents, which resulted in an I recommendation. Recent data from the National Health and Nutrition Examination Survey suggest that mean blood pressure levels are rising steadily in children, as is the prevalence of childhood hypertension. This may be due to the increase in the prevalence of obesity and overweight among children, which is highly correlated with high blood pressure. Screening of asymptomatic children has the potential to detect hypertension at earlier stages, so that interventions can be initiated which, if effective, could reduce the adverse health effects of childhood hypertension in both childhood and adulthood, including cardiovascular disease and end-organ damage. This report summarizes recent and older evidence on screening and diagnostic accuracy of screening tests for high blood pressure in children, the effectiveness and harms of treatment for screen-detected, primary childhood hypertension, and the tracking of hypertension from childhood to adulthood. Using the methods of the USPSTF and with the input of members of the USPSTF, we developed an analytic framework and key questions to guide our literature search and review. Key Questions include: 1. Is screening for hypertension in children/adolescents effective in delaying the onset of or reducing adverse health outcomes related to hypertension? 2. What is the diagnostic accuracy of screening tests for elevated blood pressure in children/adolescents? 3. What is the association between hypertension in children/adolescents and hypertension and other intermediate outcomes in adults? 4. What are the adverse effects of screening for hypertension in children/adolescents, including labeling and anxiety? 5. What is the effectiveness of drug,

National High Blood Pressure Education Program

Mayo Clinic Guide to Raising a Healthy Child

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Blood Pressure Monitoring in Cardiovascular Medicine and Therapeutics

The clinical syndrome of preeclampsia is due to vasospasm, endothelial dysfunction, and altered red cell zeta potential. It is a culmination of multiple etiologies and pathophysiology modified by epigenetics and the human immune system. Since the etiology and pathogenesis of preeclampsia are segregated and multifactorial, there is no single clinical, biophysical, or biochemical marker that can predict all types of this condition. This book provides a set of tentative specific prediction markers that can be used to identify different subtypes of preeclampsia, classify pathogenesis, categorize treatment, and identify early signs of complications.

PURPOSE: To review the evidence about screening for high blood pressure in children and adolescents to delay the onset of or reduce adverse health outcomes related to high blood pressure. DATA SOURCES: MEDLINE, Embase, International Pharmaceutical Abstracts, the Cochrane Library, and trial registries through September 3, 2019; bibliographies from retrieved articles, outside experts, and surveillance of the literature through October 6, 2020. STUDY SELECTION: Two investigators independently selected studies using a priori defined inclusion and exclusion criteria. For this update, we included studies of screening for primary and secondary hypertension in asymptomatic children and adolescents. For benefits and harms of treatments or the association between hypertension in children and adolescents and intermediate outcomes in adults, we included participants with primary or secondary hypertension or elevated blood pressure. We selected studies that evaluated the diagnostic accuracy of blood pressure measurements in children and adolescents within primary care settings. We also included epidemiological studies that assessed the association between high blood pressure in children and adolescents and hypertension and other intermediate outcomes in adults. We included intermediate outcomes only if they were closely related to hypertension (e.g., left ventricular hypertrophy, urinary albumin excretion, retinal vascular changes, and intima media thickness). For treatment of hypertension, we selected controlled
trials of pharmacological agents, lifestyle interventions, or combination treatments. We excluded studies with poor methodological quality and studies conducted in developing countries.

DATA EXTRACTION AND ANALYSIS: One investigator extracted data and a second checked accuracy. Two reviewers independently rated methodological quality for all included studies using predefined criteria. Because data were insufficient for meta-analyses, we qualitatively synthesized findings for each key question. DATA SYNTHESIS: We included 42 studies (43 publications). We did not identify any studies directly evaluating health benefits or harms of screening. We also did not find studies assessing whether effective treatment of abnormal blood pressure during childhood has an impact on hypertension and other intermediate outcomes during adulthood. Furthermore, we did not find any studies that addressed screening for secondary hypertension in asymptomatic children. One fair study (n=247) assessed the diagnostic test accuracy of six office-based blood pressure measurements, 1 to 2 weeks apart, compared with ambulatory blood pressure monitoring as the reference standard. Office-based blood pressure measurements used recommendations of the Fourth Report as thresholds. Using systolic blood pressure (SBP) at the 90th percentile as a cutoff for abnormal blood pressure, the sensitivity of office-based measurements was 81.6 percent (confidence interval [CI] not reported) with a specificity of 70.3 percent (CI not reported). Twenty studies on data from nine national and international cohorts evaluated the association between high blood pressure in childhood and hypertension or other intermediate outcomes during adulthood. Despite substantial heterogeneity, studies consistently
reported associations between abnormal blood pressure in childhood and abnormal blood pressure in adulthood. The strength of associations varied across studies (odds ratios [ORs] ranged from 1.1 to 4.5, relative risk [RR] ranged from 1.45 to 3.60, hazard ratios [HRs] ranged from 2.8 to 3.2; duration of followup ranged from 10 to 33 years). Studies also reported associations between abnormal blood pressure during childhood and carotid intima-media thickness (OR: 1.24, 95% CI, 1.13 to 1.37 [mean duration of followup was 25 years]; HRs ranged from 2.03 to 3.07 [duration of followup ranged from 10 to 21 years]; correlation coefficients ranged from 0.04 to 0.16 [duration of followup ranged from 21 to 31 years]), left ventricular hypertrophy (ORs ranged from 1.30 to 1.59, mean duration of followup was 25 years; HRs ranged from 1.92 to 3.41; duration of followup ranged from 10 to 21 years), and microalbuminuria (regression coefficients ranged from 0.016 to 0.315; mean duration of followup was 16.1 years). Twenty randomized, controlled trials (RCTs) and a meta-analysis assessing treatments for hypertension in children and adolescents met inclusion criteria. The majority of studies excluded children with known secondary hypertension. Thirteen fair-quality placebo-controlled RCTs and one meta-analysis evaluated the efficacy of various pharmacological treatments. All studies reported greater reductions of SBP and diastolic blood pressure (DBP) measurements in participants who received pharmacological treatments compared with those treated with placebo. The magnitude of reductions, however, varied, and not all differences reached statistical significance. Pooled reductions of SBP were $-4.38$ mmHg (95% CI, $-2.16$ to $-7.27$) for angiotensin-converting enzyme (ACE) inhibitors, $-3.07$ mmHg (95% CI, $-1.44$ to $-4.99$) for
angiotensin receptor blockers (ARBs), −3.20 mmHg (95% CI, +2.23 to −8.69) for beta blockers, −3.10 mmHg (95% CI, +0.45 to −6.52) for calcium channel blockers, and −0.12 mmHg (95% CI, +3.46 to −3.69) for mineralocorticoid receptor antagonists. Followup of studies was limited to 2 to 4 weeks. One fair-quality trial, conducted from 1979 to 1981 in the United States and using a combination of a pharmacological treatment (low-dose propranolol/chlorthalidone) and lifestyle interventions (dietary and exercise modifications for children and parents), reported a statistically significant reduction of SBP (−7.6 mmHg) and DBP (−6.9 mmHg) after 6 months. A DASH (Dietary Approaches to Stop Hypertension) −type diet (high in fruits, vegetables, and low-fat dairy foods) achieved statistically significant reductions in SBP (−2.2 mmHg) and DBP (−2.8 mmHg) in a completers-only analysis of one fair-quality RCT. The effect did not last beyond the intervention period. Two fair-quality RCTs assessing physical exercise reported statistically significant decreases in SBP after 3 and 8 months (−8.3 and −4.9 mmHg, respectively) compared with lifestyle as usual. Only the study lasting 8 months reported a significant decrease in DBP (−3.8 mmHg vs. not reported). Based on evidence from three fair-quality trials, a low-sodium diet and progressive muscle relaxation did not achieve any significant or clinically relevant changes in SBP or DBP. Regarding harms of treatments, six fair-quality RCTs reported similar risks of adverse events between various pharmacological treatments (beta blocker, calcium channel blockers, angiotensin-converting enzyme, inhibitors or angiotensin receptor blockers) and placebo. The duration of trials, however, was limited to 2 to 4 weeks. One fair-quality RCT reported
similar risks for adverse events between a combination of pharmacotherapy and lifestyle interventions and a control group without treatment over 6 months. LIMITATIONS: Only English-language studies were included. No direct evidence for the benefits or harms of screening was identified. In addition, the indirect evidence pathway from screening to improvement of health outcomes is scarce, of limited applicability, or entirely missing for some steps of the pathway. The evidence on diagnostic accuracy was limited to one poor quality study. Epidemiological studies determining associations between high blood pressure in childhood and adulthood used various definitions and thresholds; the results were generally consistent in demonstrating an association, although the strength of association varied. Pharmacological treatment studies were limited to durations of 2 to 4 weeks of followup and excluded children with secondary hypertension; no evidence was available for long-term effectiveness. The mean age of children in these studies ranged between 12 and 14 years; the generalizability of results to younger children or children with secondary hypertension is unknown. Studies of treatment were generally too short and underpowered for harm outcomes. We did not assess the comparative effectiveness or harms of treatments. CONCLUSIONS: We identified no direct evidence that compared screening with no screening in asymptomatic children and adolescents. Epidemiological studies indicate an association between hypertension in childhood and adolescence and hypertension in adulthood. Large longitudinal cohort studies also provide evidence that hypertension in adolescents and young adults is associated with end-stage renal disease and
mortality from cerebrovascular events during adulthood. The proportion of spontaneous resolution of hypertension in children and the long-term benefits and harms of treatment, however, remain unclear. The evidence is also inconclusive whether the diagnostic accuracy of blood pressure measurements is adequate for screening asymptomatic children and adolescents in primary care. Short-term pharmacological treatments appear effective and safe, but no evidence with a followup of more than 4 weeks is available. No evidence exists to determine whether screening for hypertension is effective in identifying children with secondary hypertension who are asymptomatic. Most treatment studies excluded children with secondary hypertension.

Prediction of Maternal and Fetal Syndrome of Preeclampsia

BACKGROUND: Hypertension in children can be associated with adverse health outcomes and may persist into adulthood, where it presents a significant personal and public health burden. Screening asymptomatic children has the potential to detect hypertension at earlier stages, so that interventions can be initiated which, if effective, could reduce the adverse health effects of childhood hypertension in children and adults. PURPOSE: To assess the effects of screening for hypertension in asymptomatic children and adolescents to prevent cardiovascular disease. METHODS: We searched the Cochrane Central Register of Controlled Trials and the Cochrane Database of Systematic Reviews (through July 2012) and MEDLINE (1946-July 9, 2012) and manually reviewed reference lists of
included studies. Citations were independently reviewed by two investigators, and data extraction performed by one investigator and checked by a second for accuracy. We included studies of screening for hypertension in asymptomatic children and studies of benefits and harms of treatments for children with hypertension. Diagnostic accuracy studies were included if they used a reference standard and allowed calculation of sensitivity and specificity. We excluded studies focusing on secondary hypertension. RESULTS: No studies evaluated the effect of screening asymptomatic children for hypertension on subsequent health outcomes, including onset of hypertension. Two studies that assessed accuracy of screening tests for elevated blood pressure found moderate sensitivities (0.65 and 0.72) and specificities (0.75 and 0.92) and low positive predictive values (0.37, 0.17). The association between elevated blood pressure or hypertension in childhood and hypertension in adulthood was assessed in 10 studies, with most studies finding a small but significant association. Seven fair-quality studies found drug interventions were effective at lowering blood pressure after 4 weeks, based on the proportion achieving normotensive status and/or mean reductions in blood pressure. One trial of a drug combined with lifestyle modifications found lower mean blood pressures at 30 months, and one trial of increased exercise found lower mean blood pressures at 8 months, whereas other lifestyle trials found no differences. Of 13 studies assessing harms of interventions, only one study found that adverse event rates were significantly lower for those in the intervention group; all other studies found no difference in adverse events. CONCLUSIONS: Studies are needed to assess whether screening for
hypertension in children and adolescents reduces adverse health outcomes or delays the onset of hypertension. Blood pressure screening may be effective at identifying children with hypertension, though evidence is limited and false-positive rates were high. The presence of hypertension in childhood is associated with hypertension in adults, but with limited evidence available for its association with end-organ damage markers in adults. Drug interventions for hypertension may be effective at lowering blood pressure with few serious side effects; however, studies of longer duration are needed to confirm results from short-term studies. Evidence on the effectiveness of childhood combination drug and lifestyle interventions and lifestyle-only interventions is sparse and mixed, with most studies showing no sustained reduction in blood pressure in childhood. Studies are needed to assess whether treating hypertension in childhood affects subsequent intermediate or clinical outcomes in adulthood.

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