CHILD, HYPERTENSION AND ORAL HEALTH

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ABSTRACT

Hypertension is a major public health issue in industrialized nations. Many efforts have focused on the primary prevention and control of hypertension in adults. Nevertheless, the increasing incidence of hypertension in younger age groups has drawn attention to the severity and complications of the disease in children and adolescents. Public health implications of hypertension in children are overwhelming because many of these individuals will eventually face medical squeal into adulthood. Reproducibility of blood pressure in children can be challenging, especially in younger individuals, and the practitioner should be alert for shallow reading ranges in young children. Safe provision of dental care to hypertensive children requires knowledge about the aetiology of the elevation in blood pressure, oral manifestations, target organ damage, and possible drug interactions. This article provides an overview of hypertensive children and their oral health management. The recommendations presented in this article have been formulated using the available data regarding hypertension in children.

KEY WORDS: hypertension, oral health, children

A sustained elevation in blood pressure increases the risk of an adverse outcome, such as stroke and myocardial events.[1-3] Many efforts have focused on the primary prevention and control of hypertension in adults.[1] Nevertheless, the increasing incidence of hypertension in younger age groups has drawn attention to the severity and complications of the disease in children and adolescents.[1-4] Public health implications of hypertension in children are overwhelming because many of these individuals will eventually face medical sequel into adulthood.[1,5] This article provides an overview of a hypertensive child and their oral health management.

PRIMARY AND SECONDARY HYPERTENSION

The prevalence of hypertension in children is significantly less (1-3%). The majority of these children have only a mild increase in blood pressure and belong to the category of primary (essential) hypertension. [3] However, there is a small group of children with much higher blood pressures, most of who suffer from secondary hypertension. The prevalence of persistent secondary hypertension in children is about 0.1%, and renal disease predominates in this group, more than 80% will have underlying kidney disease. Education, anticipatory guidance, early detection, accurate diagnosis and effective therapy may help to improve the long-term outcomes of children and adolescents affected by this "silent killer". [6]

In children hypertension, is influenced by several factors. The younger the child with significant hypertension or the higher the blood pressure, the more likely there is to be a correctable cause. If the child is markedly overweight, obesity is the likely cause. If there is a strong family history of essential hypertension, particularly in an adolescent patient, there is less need to look for another cause. Much other age related common causes are enumerated in table 1. [7]

BLOOD PRESSURE AND ORAL HEALTH

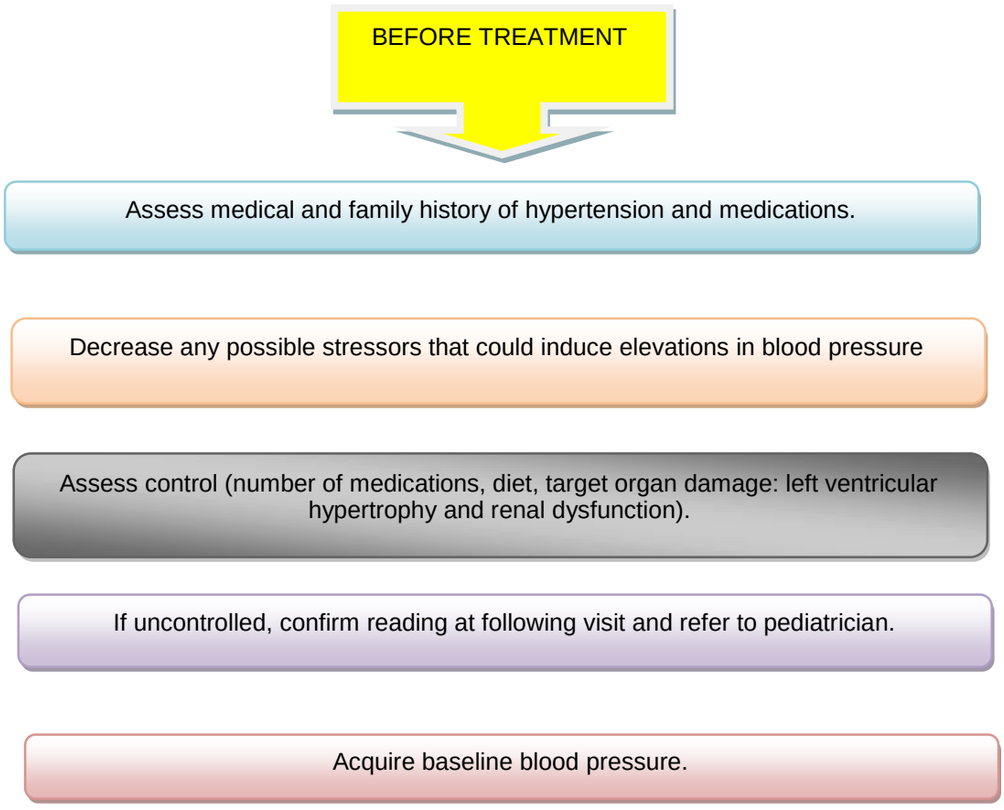
Reproducibility of blood pressure in children can be challenging, especially in younger individuals, and the practitioner should be alert for shallow reading ranges in young children.

At-risk patients (obese, renal, or cardiovascular disease) should have blood pressure monitoring across visits to account for white coat hypertension

Table 1:

AGE-RELATED COMMON CAUSES OF HYPERTENSION	
AGE GROUP	**LESIONS**
Neonate	Renal artery thrombosis or stenosis, renal malformations, coarctation of the aorta, bronchopulmonary dysplasia
Infants to 6 years	Renal parenchymal diseases, coarctation of the aorta, renal artery stenosis
6-10 years	Renal parenchymal diseases, renal artery stenosis, essential hypertension
Adolescence	Essential hypertension,obesity, renal parenchymal diseases

Fig. 1 : RECOMMENDED PROTOCOL FOR SCREENING OF PEDIATRIC PATIENTS IN THE DENTAL SETTING [ADAPTED BY PINTO ET AL, 2006]



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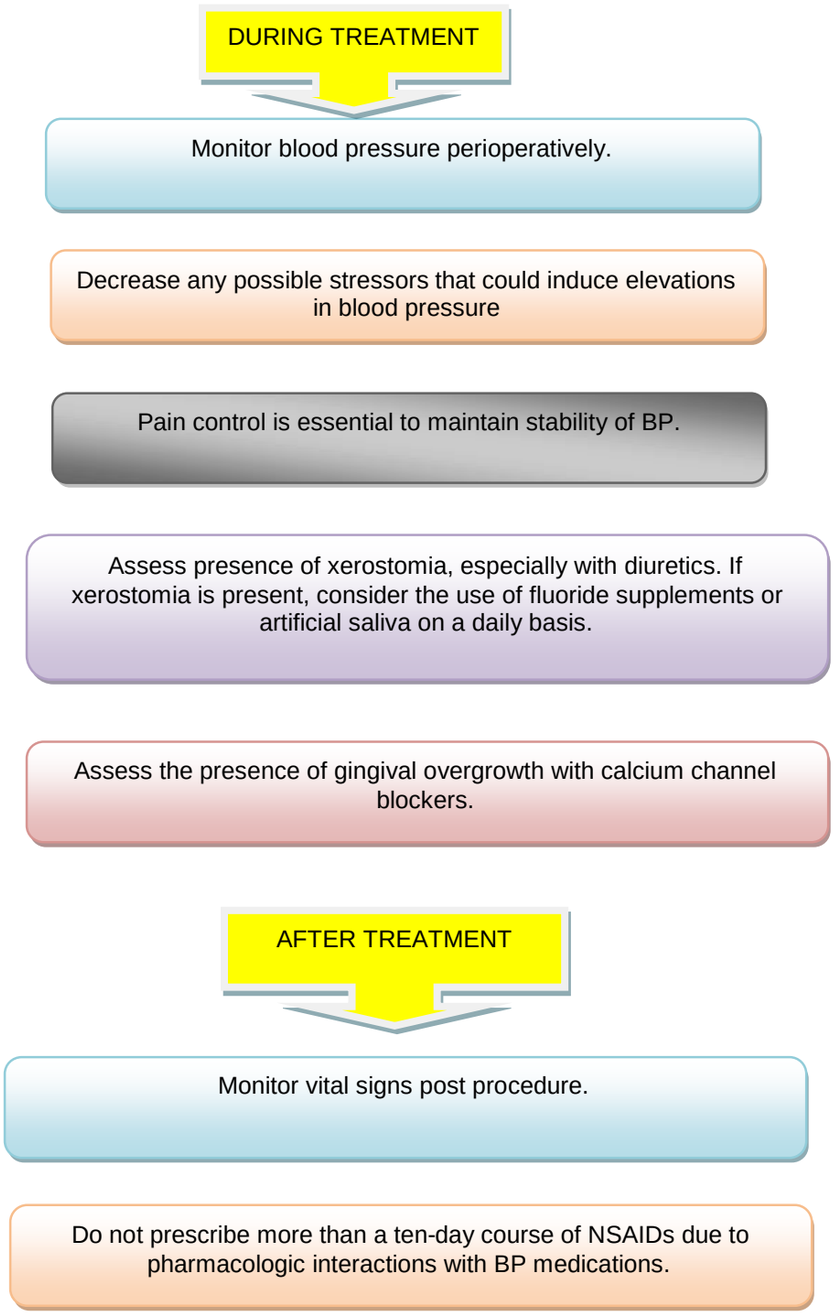
DURING TREATMENT
Monitor blood pressure perioperatively.
Decrease any possible stressors that could induce elevations in blood pressure
Pain control is essential to maintain stability of BP.
Assess presence of xerostomia, especially with diuretics. If xerostomia is present, consider the use of fluoride supplements or artificial saliva on a daily basis.
Assess the presence of gingival overgrowth with calcium channel blockers.
AFTER TREATMENT
Monitor vital signs post procedure.
Do not prescribe more than a ten-day course of NSAIDs due to pharmacologic interactions with BP medications.

induced by the anxiety produced by the dental visit. Even healthy young patients exposed to excessive doses of local anesthetic with vasoconstrictor are susceptible to blood pressure crisis. In the presence of an existent predisposition, the outcome could be fatal.[8]

METHOD OF CHECKING BLOOD PRESSURE IN KIDS

The right arm is the extremity of choice for older children. The cuff width should cover approximately 40 percent of mid-arm circumference, at the midpoint between the olecranon and acromion, the anatomic extension of the arm, and its length should cover between 80 and 100 percent of the arm circumference. [9]

Systolic blood pressure is identified by the onset of the first audible pulsation. The diastolic blood pressure is identified by the disappearance of the sounds. In the pediatric age, these pulsations (Korotkoff sounds) may be heard until the gauge reaches the zero mark. In such cases, the measurement should be repeated, reducing the amount of pressure placed on the head of the stethoscope. The practitioner should be familiar with the percentile tables that classify hypertension, and these should be readily accessible to any member of the dental team.[10]

A recommended protocol of dentists for the hypertensive children has been detailed in Figure 1.

The problem of factors contributing to the development of elevated blood pressure requires more research on the effects of body weight, physical activity, the lifestyle, behaviours, attitudes and other factors including both observational and interventional studies. Less information is available on the current study topic, so more in-depth research needs to be done. Hypertension can be controlled in various organized community based programs in various socio-economic and health care settings. Interventional measures like training of health personnel, health education of the general public, case findings through screenings and the up gradation of health services are recommended for hypertension care.

Safe provision of dental care to hypertensive children requires knowledge about the aetiology of the elevation in blood pressure, oral manifestations, target organ damage, and possible drug interactions. The recommendations presented in this article have been formulated using the available data regarding hypertension in children.

But finally any hypertensive children encountered in the dental settings should be referred to a Paediatrician.

REFERENCES

1. Lande MB, Kaczorowski JM, Auinger P, Schwartz GJ, Weitzman M. Elevated blood pressure and decreased cognitive function among school-age children and adolescents in the United States. J Pediatr 2003;143(6):720-4.
2. Barker DJ. Coronary heart disease: a disorder of growth. Horm Res 2003;59(Suppl 1):35-41.
3. Belay B, Belamarich P, Racine AD. Pediatric precursors of adult atherosclerosis. Pediatr Rev 2004;25(1):4-16.
4. 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. Pediatr 2004(2 Suppl);114:555-76.
5. Sorof JM, Turner J, Martin DS, Garcia K, Garami Z, Alexandrov AV, et al. Cardiovascular risk factors and sequelae in hypertensive children identified by referral versus school-based screening. Hypertension 2004; 43(2):214-8.
6. Sanjeev Gulati. Hypertension in children. Ind Jour of Pediatr. 2002;69(12):1077-1081.
7. Approach to hypertension diagnosis www.health.am/hypertension/.../approach-to-hypertension-diagnosis/ -
8. Pinto A, Roldan R, Sollecito TP. Hypertension in Children: An Overview. J Dent Educ. 2006; 70 (4): 434.
9. Edefonti A. Hypertension: epidemiology and clinical approach. Pediatr Med Chir 2002;24(2):130-1.
10. Nehal US, Ingelfinger JR. Pediatric hypertension: recent literature. Curr Opin Pediatr 2002;14(2):189-96.

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