

ORIGINAL RESEARCH

Study of Evaluation of Elevated Blood Pressure in Adolescents in a Known Population: An Institutional Based Study

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ABSTRACT

Background: Hypertension (HTN), i.e., elevated blood pressure, is one of the most important risk factors for cardiovascular disease. The present study was conducted to assess the prevalence of elevated blood pressure in adolescents in a known area. **Materials & Methods:** The community-based cross-sectional study was conducted on 13–18-year-old adolescents over a period of 1 year. 600 adolescents were included in the study. BP was measured. Statistical Package for Social Sciences (SPSS) was used for data entry and analysis. $p < 0.05$ was taken as level of significance. **Results:** Of the 600 adolescents included in the study, elevated BP was prevalent in 13.33% adolescents. 15.83% adolescents were pre hypertensive and 70.83% were normotensive. **Conclusion:** The present study concluded that elevated blood pressure was prevalent in 13.33% adolescents.

Keywords: Blood Pressure, Adolescents, Hypertension.

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INTRODUCTION

Arterial hypertension (AH) is an important public health problem in Western countries. It is the most prevalent cardiovascular disorder, contributing to 1 million annual deaths in the adult population.¹ In the Fourth Report on High Blood Pressure in Children and Adolescents by the National High Blood Pressure Education Program (NHBPEP) in 2004², hypertension in the young was defined as an average systolic BP (SBP) and/or diastolic BP (DBP) that is above the 95th percentile for gender, age and height on more than three occasions. Prehypertension was defined as the average SBP or DBP levels that are over the 90th percentile but below the 95th percentile. Adolescents with BP values above 120/80 mmHg but below the 95th percentile should also be considered prehypertensive. These BP thresholds are typically reached for SBP at 12 years and for DBP at 16 years of age. In this regard, it is crucial to point out the importance of periodic BP control in children and adolescents.² The prevalence of hypertension in children and adolescents seems to be increasing.³ This rise is partially because of the increasing prevalence of obesity among children and adolescents, as well as a growing awareness of this disease. There is evidence

that hypertension in children and adolescents can lead to adult hypertension.^{4,5} Hypertension is known as a risk factor for coronary artery disease in adults, and the presence of hypertension in children and adolescents may contribute to the early development of coronary artery disease. Previous reports have shown that early development of atherosclerosis does exist in children and adolescents and may be associated with childhood hypertension.^{6,7} The present study was conducted to assess the prevalence of elevated blood pressure in adolescents in a known area.

MATERIALS & METHODS

The community-based cross-sectional study was conducted on 13–18-year-old adolescents over a period of 1 year. 600 adolescents were included in the study. BP was measured by mercury sphygmomanometer that was standardized daily. With children's right arm extended over the table at the level of heart and ensuring cuff of appropriate size, three readings of systolic and diastolic BP (SBP and DBP) were taken and the average noted. Based on the fourth report from the National High BP Education Program, "hypertension" is defined as average SBP

and/or DBP that is ≥ 95 th percentile for sex, age, and height on three or more occasions. "Prehypertension" is defined as average SBP or DBP levels that are ≥ 90 th percentile, but < 95 th percentile. Adolescents with BP levels $\geq 120/80$ mmHg should be considered prehypertensive. Elevated BP constitutes both prehypertension and hypertension. Statistical Package for Social Sciences (SPSS) was used for data

Table 1: Blood Pressure distribution in adolescents

Blood Pressure distribution in adolescents	N(%)
Hypertensive	80(13.33%)
Pre-hypertensive	95(15.83%)
Normotensive	425(70.83%)

DISCUSSION

Prevention of hypertension in children and adolescents during the period of active growth and development is feasible, effective and safe, and can decrease the levels of these factors in adults in the future.⁸

Of the 600 adolescents included in the study, elevated BP was prevalent in 13.33% adolescents. 15.83% adolescents were pre hypertensive and 70.83% were normotensive.

In other studies, in India as well as in other parts of the world report prevalence ranging from 0.46% to 21.8%. The reason might be because neither the study group's age or ethnicity nor the methodology used was similar.⁹ It is worth emphasizing that some studies performed only one measurement while the others did repetitive measurements and there is evidence that prevalence decreased from 13% to 1% between the first and third visits.¹⁰

Lurbe and Redon have described the role of ABPM in the evaluation of BP in adolescents to facilitate the identification of teenagers at risk of developing essential hypertension in adulthood.¹¹

Previous data from the same group have shown that white-coat hypertension and masked hypertension occur in as many as 21 and 10%, respectively, of moderately and severely obese individuals, emphasizing the importance of detecting these conditions of altered BP in obese youths.¹²

High BP was found to coexist with other cardiovascular disease risk factors. As in adults, high BP in children has also been shown to coexist with other cardiovascular diseases risk factors, particularly overweight and obesity.¹³⁻¹⁵

CONCLUSION

The present study concluded that elevated blood pressure was prevalent in 13.33% adolescents.

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entry and analysis. $p < 0.05$ was taken as level of significance.

RESULTS

Of the 600 adolescents included in the study, elevated BP was prevalent in 13.33% adolescents. 15.83% adolescents were pre hypertensive and 70.83% were normotensive.

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