

The Association Between Blood Pressure and Body Mass Index in School-Aged Children

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Overview

With obesity on the rise in children, the risks that are associated with increased body mass index (BMI) are essential to research to prevent future medical complications. Elevated BMI in children can extend into adulthood with adverse consequences such as elevated levels of insulin, lipids and blood pressure. If a link between BMI and blood pressure is determined, increased BMI in children will become a primary indicator for providers to monitor body mass and blood pressure at a younger age to prevent the formation of hyperlipidemia and atherosclerosis. pressure at a younger age to prevent the formation of hyperlipidemia and atherosclerosis. The purpose of this study is to determine the relationship between blood pressure and body mass index in children ages 10-12 and compare the findings with results from a feasibility study conducted in a school setting by the faculty mentor.

Methodology

A child (10-12 years of age) and parent who makes a visit to the clinic will be asked to participate in the study. After assent and consent from both the child and parents, respectively, have been received, the parents will be asked to complete a Demographics Questionnaire form. Height, weight, and two blood pressure readings for each child participant will be measured and recorded. Data collection will take place in a private patient room within the clinic. Parents of each child participant will be present during data collection. The pediatrician's office nurse will be present during data collection.

Impact

- Elevations in BP in childhood have been linked to hypertension in adults.
- It is important for health care providers to assess BP and to consider treatments for such elevations.
- Overweight and obese children are particularly vulnerable to elevations in BP.
- Assessment of BP and weight in school-aged children is critical.
- The implementation of screening children for high blood pressure should be standardized in pediatric check-ups and visits.
- Identification of increased blood pressure can result in both child and parent education regarding diet and activity that can decrease BMI.
- Pediatricians can teach patients that with increased BMI, the child is at risk for developing atherosclerotic diseases, amongst others, due to the increased blood pressure.
- Health care providers can implement protocols that ensure that elevated blood pressure is screened in children with high BMI and children are diagnosed with high blood pressure utilizing the new protocols for diagnosis.



Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents

- 2017 Clinical Practice guidelines endorsed by the American Heart Association and the American Academy of Pediatrics
- Tables categorize blood pressure based on age, sex, and height of child

Elevated Blood Pressure	○ Systolic and diastolic \geq 90th percentile to <95 th percentile
Stage 1 Hypertension	○ Systolic and diastolic \geq 95th percentile to <95 th percentile + 12 mmHg
Stage 2 Hypertension	○ Systolic and diastolic ≥ 95 th percentile + 12 mm Hg
Obesity	○ Body Mass Index (BMI) between the 95 th and 98 th percentiles



Explanation

Data analyses are pending. This study will enroll a limited number of participants and generalization to other populations cannot be made. With the comparison between school and clinic populations, the prevalence of increased blood pressure and BMI in this age group may be further determined

Acknowledgements

I would like to thank Dr. Thuy Lynch for allowing me to join her research to further knowledge on the increasing rates of BMI in children and its possible effects on health. I would also like to thank Dr. Ann Bianchi for her support throughout this entire process. Finally, I would like to thank Dr. Nagendra Rao Thotakura for his support and approval of this research in a clinical setting.