ABSTRACT SUBMISSION FORM

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SEX + GENDER

Exploring the role of sex and gender on health research

CHILD HEALTH RESEARCH DAYS

CHRD 2020: Abstract Submission Form

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Title
Isolated diastolic high blood pressure: A distinct clinical phenotype in North American children

Background
Although 11.0–33.5% of children with high blood pressure (BP) have isolated diastolic high BP (iDH), its prevalence has not been well studied in a North American context using gold-standard auscultation and the 2017 American Academy of Pediatrics diagnostic criteria. This study aims to define the population prevalence of high BP phenotypes in US children and explore their distinct clinical and laboratory features. In the adult literature, iDH is considered a superior predictor of cardiovascular morbidity for young adults (<50y), and early iDH is sometimes regarded as a precursor for the subsequent development of systolic or mixed hypertension.

Objective
This study aims to clarify the prevalence and clinical features of high BP phenotypes in US children.

Methods
We studied 17,362 children aged 8–18 years from the National Health and Nutrition Examination Survey (1999–2016) with BP measured by sphygmomanometry. Using the 2017 guidelines, high BP was categorized as isolated systolic (iSH), iDH, or mixed phenotypes.

Results
Overall, 86.0% (95%CI=85.0–87.0) had normal BP. Of those with high BP, 79.5% (76.9–82.0) had iSH, and 13.3% (11.2 –15.4) had iDH. Children with iSH were more likely to be males, older, non-white, and heavier than both normals and iDH, with higher rates of overweight/obesity. This pattern was repeated for other measures of adiposity and cardiometabolic risk, with iDH generally intermediate between normals and iSH, with a significantly lesser male preponderance in iDH. Resting heart rate was significantly higher in iDH even after adjustment for potential confounders, particularly in females (p<0.001). Estimated

glomerular filtration rate was significantly reduced in all high BP phenotypes.

Conclusion
Children with iDH have a distinct clinical picture in terms of sex, age, ethnicity, adiposity, and associated cardiometabolic risk factors. A leaner body habitus and higher resting heart rate may reflect differences in underlying pathophysiology. Longitudinal follow-up studies are needed to better define the pathogenesis, progression, and long-term prognosis in pediatric iDH.

Theme:
Clinical

Do you have a table/figure to upload?
No

Are you willing to participate in Goodbear's Den?
Yes

Presenter Status:
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What was your role in the project?
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