Evaluating the Implementation of the 2017 Pediatric Blood Pressure Guidelines Within a Pediatric Nephrology Clinic

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BACKGROUND

• The issue: 15% of children and adolescents in the US have high blood pressure per the CDC. For adolescents 13 years and older:
  • Normal BP: <120/<80
  • Elevated: 120/<80 to 129/<80
  • Stage 1: 130/80-139/89
  • Stage 2: >140/90

• Why this is important: high BP puts a child at risk for long-term cardiac, renal, and metabolic dysfunction and thus should be accurately diagnosed by providers

• In 2017, AAP published Clinical Practice Guideline for the Screening and Management of High Blood Pressure in Children and Adolescents (updates to 2004 guidelines)

• In 2018, OHSU Pediatric Nephrology Clinic’s quality improvement project was to update hypertension protocol for adolescent age group to align with national guidelines

AIM

To evaluate the implementation of the updated pediatric blood pressure guidelines within a pediatric nephrology clinic, specifically the effectiveness of the quality improvement changes and current provider adherence to the new hypertension diagnostic protocol

OUTCOMES

• Key changes in 2017 Clinical Practice Guideline:
  • Updated hypertension parameter tables
  • Expanded use of ABPM
  • More conservative use of echocardiograms

• Predicted outcomes of program evaluation
  • Increased rate of ABPM utilization
  • Decreased rate of echocardiogram utilization
  • Increasing rate of provider adherence to updated protocol over time

REFERENCES


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DISCUSSION

• Implementation of new guidelines impacts primary and specialty pediatric practice, particularly utilization of diagnostic testing in specialty practice

• Predicted results indicate significant provider adherence to updated protocol

• New pediatric hypertension guidelines promote accurate, efficient, and cost-effective practice

• Study out of Texas Children’s Hospital found that performing and interpreting ABPM is almost five times cheaper than performing and interpreting an echocardiogram
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BACKGROUND: Hypertension is becoming more prevalent in the pediatric population and yet is often underdiagnosed. According to the Centers for Disease Control and Prevention, approximately 15% of children and adolescents in the United States have elevated blood pressure or hypertension. A child with unrecognized and untreated hypertension is at risk for cardiac, metabolic, and renal dysfunction that can extend into adulthood. To facilitate diagnosis, the American Academy of Pediatrics in 2017 published an evidence-based Clinical Practice Guideline for the Screening and Management of High Blood Pressure in Children and Adolescents. The new guidelines include an emphasis on increased recognition of pediatric hypertension, updated blood pressure parameters, decreased utilization of diagnostic procedures, and increased utilization of ambulatory blood pressure monitoring.

AIM: The aim of this practice evaluation is to assess the implementation of the AAP guidelines within a pediatric nephrology clinic, specifically the effectiveness of the quality improvement changes and current provider adherence to the new patient diagnostic protocol.

DETAILS OF INNOVATION: In the year after the practice update, a pediatric nephrology clinic at a Pacific Northwest university revised its diagnostic protocol for new adolescent patients referred for hypertension. The purpose of initiating this quality improvement project was to align the clinic’s hypertension protocol with the updated national standards. Evaluation of the practice innovation began the following year. Medical charts of adolescent patients ages 13-18 years who were referred to the nephrology clinic for hypertension between 2016 and 2019 were pooled from the electronic health record in order to compare pre-intervention and post-intervention data. Through retrospective chart review, data on individual patient demographics was extracted as well as patient’s stage and type of hypertension, and whether or not patient underwent ambulatory blood pressure monitoring, an echocardiogram, a renal ultrasound, and serum renin and aldosterone level measurement in the hypertension work-up process.

OUTCOMES: Preliminary data from the practice evaluation suggests that practice changes based on AAP guideline recommendations resulted in changes in the management of adolescents presenting with hypertension. Results of the practice innovation included decreased utilization of diagnostic procedures such as echocardiograms and increased utilization of ambulatory blood pressure monitoring during the hypertension diagnostic process. Preliminary data also suggests that less laboratory testing is now ordered for identifying primary or secondary causes of hypertension.

DISCUSSION: Implementation of the AAP clinical practice guidelines on blood pressure in the pediatric population results in more efficient, cost-effective, and accurate diagnosis and management of adolescents with hypertension. This evaluation of a pediatric nephrology clinic’s hypertension protocol demonstrates decreased unnecessary testing and utilization of more effective diagnostic measures such as ambulatory blood pressure monitoring. Hypertension, an increasing problem in the pediatric population, demands more evidence-based protocols for patient care.

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