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Editorial

# Criteria for Referrals for Pediatric Hypertension: The Fourth Report Revisited

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The obesity epidemic in this country has had a profound effect on the health children within the last 20 years. Type 2 diabetes, cardiovascular disease, sleep apnea and hypertension have all increased in the pediatric population as a result of obesity. The incidence of hypertension alone has increased four-fold since the 1980s [1,2]. Even more remarkable, in 1988, secondary causes of hypertension accounted for 84% of referrals for hypertension to pediatric nephrologists. By 2010, this demographic had reversed with primary hypertension accounting for 90% of referrals [3], a change also attributed to the greater prevalence for obesity.

The Fourth Report, published in 1996 and revised in 2005 [4], established normal blood pressure parameters in children based on age, gender and height. These tables are widely used in pediatric and primary care practices. The Fourth Report also gave specific guidelines for measuring and defining blood pressure, and the criteria for referrals to pediatric nephrology. The Fourth Report defined hypertension by the average of at least three blood pressures, measured on separate days that equaled or exceeded the 95% for age, gender and height. This definition of hypertension constituted the indication for a nephrology referral. An average blood pressure between the 90-95% was considered borderline, and a repeat evaluation was recommended in six months. The report emphasized that high blood pressures, if obtained by an automated device, must be verified by auscultation.

Last January to March, I surveyed all new referrals for hypertension to at university-based pediatric nephrology program in Eastern North Carolina. My interest was to determine if referrals from the primary care providers conformed to the Fourth Report recommendations.

From January to February 2014, 17 practices referred 30 children for new onset of hypertension (ages ranged from 5 months to 17 years, median 12 years). 75% were obese based on their BMI. 67% met the criterion for referral with systolic pressures exceeding the 95%. Diastolic pressures were elevated in 37%. Three or more blood pressures readings were recorded in only 53% of referrals. Most blood pressures were measured by automated devices. Auscultation was performed in only 10%. When evaluated by a nephrologist, hypertension was confirmed by auscultation in 10 children (30%).

These results raise several questions and concerns. Because most of these patients are obese, are they subjected to excessive referrals to nephrology even if their blood pressures do not meet the criterion for a hypertension? Did "white coat hypertension" account for the majority of these referrals? Some will argue it is better to err on the side of caution and refer too early than too late. However, it is disturbing that most of the obese patients were never referred to weight control programs which are available for children in this area, and are paid for by all insurance carriers including Medicaid. Instead, their primary care doctors chose to focus on one clinical consequence of obesity rather than addressing the underlying cause.

In fairness to these referring physicians, many of the recommendations of the Fourth Report have become impractical or outdated in this era of obesity and an increased for blood pressures. I would propose several alternatives to Fourth Report's standards of care.

The Fourth Report Recommendations

- 3 separate visits for BP, refer if average > 95%
- Return for 6 month evaluation for borderline hypertension (90-95%)
- Referral to nephrology after 3 visits with average blood pressure exceeding the 95%

Alternative Recommendations

- Refer if 3 BP by auscultation exceed the 95% on the same well visit
- Weight loss program, in place of a referral to nephrology, for obese children with borderline or mild hypertension, and follow BP frequently (every 4-8 weeks)
- Earlier referral to nephrology if secondary hypertension suspected (non-obese child, hematuria, proteinuria, etc.)

These alternative recommendations are more realistic for enhancing patient care and improving the efficiency of primary care offices for managing and referring hypertensive children. As pediatric hypertension and obesity will remain a significant problem for years to come, pediatric nephrologists should partner with primary care providers for developing effective strategies that address the best methods for managing these patients. While tertiary care by pediatric specialist may be required, a referral to nephrology does not resolve the underlying problems of obesity or serve as a substitute for an effective weight loss program.

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