

Developmental Pediatrics

Title: PREVALENCE OF HYPERTENSION IN CHILDREN WITH SPINA BIFIDA

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Background: Children with spina bifida (SB) have many risk factors for hypertension (HTN). These include a neurogenic bladder, recurrent urinary tract infections, sedentary lifestyle, obesity, and the presence of a shunt. We hypothesized that children with SB have a higher prevalence of HTN than age-matched population-based controls.

Method: Charts of all patients seen in the SB Clinic at the Shriners Hospital for Children in Houston, Texas were reviewed. Data collection included age, gender, ethnicity, presence of myelomeningocele, lipomeningocele, or sacral agenesis, level of lesion, adjusted height (100/106 x arm span), weight, body mass index (BMI) and blood pressure (BP) measurements for all outpatient visits. The study was approved by the Committee for Protection of Human Subjects.

Hypertension is defined as a systolic BP (SBP) and/or diastolic BP (DBP) \geq 95th percentile for age, gender, and height on \geq 3 occasions. Prehypertension is defined as a SBP or DBP between the 90th and 95th percentile or \geq 120/80 mm Hg in an adolescent. National Health and Nutrition Examination Survey (NHANES) norms were used for comparison.

Results: There were 122 patients; 85 (70%) with myelomeningocele, 28 (23%) with lipomeningocele, and 9 (7%) with sacral agenesis. Age ranged from 2 to 18 years, 63(52%) were female, 54 % were Hispanic, 30% Caucasian, 12 % African-American, and 4% other. Overall, 46% of the patients were hypertensive. This was significantly higher than the 8% prevalence in the controls, $p > 0.001$. Twenty-two (18%) were pre-hypertensive. Univariate logistic regression showed that BMI was the only significant risk factor for HTN, or 1.17, 95% CI(1.08, 1.27) meaning that for every 1.0 increase in BMI, there was a 17% higher risk for HTN.

Conclusion: Hypertension and obesity in children with SB are significant public health problem. Early identification and treatment could reduce future morbidity and mortality from renal disease.