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Background

- The survival of Extremely low birth weight infants (ELBW) has improved over the years and prematurity in this population is associated with hypertension later in life.
- Follow-up studies showing increased blood pressure (BP) among adolescents and young adults born preterm raise concern that preterm birth may be associated with yet unknown developmental changes that eventually may affect later cardiovascular health.[1]

Study methods and Population

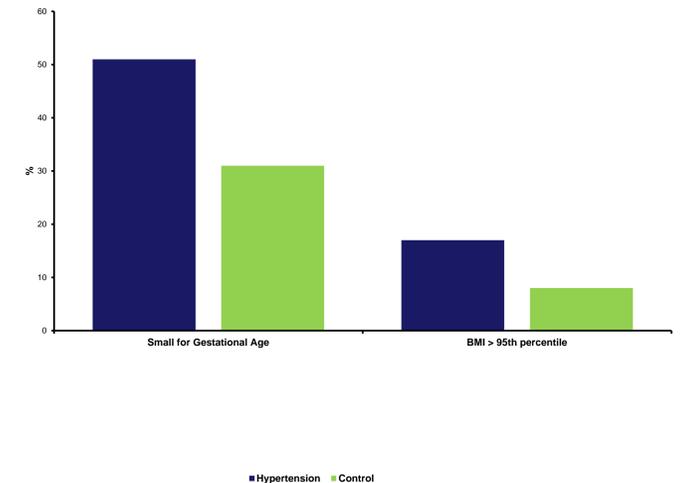
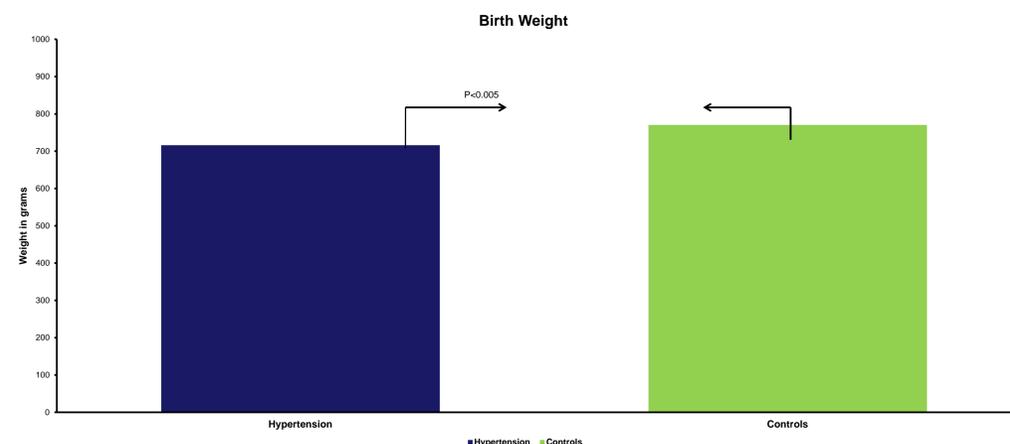
- We did a retrospective cohort study, where the medical records of all ELBW infants (< 1000 g at birth) born between April 28, 1996 and July 19, 2010 were reviewed.
- The infants' demographics at birth and anthropometric measurements at the time of discharge from the Neonatal Intensive Care Unit (NICU) and at their latest available follow up exam at 3 years of age and older were collected.
- 719 ELBW infants were born at our institution, and 478 survived until discharge from the NICU. Among survivors, 59% (281/478) were followed up at our institution at ≥ 3 years of age.
- The patients were diagnosed hypertensive based on 4th report for diagnosis of hypertension in children and adolescents [2], where the patient should have 3 separate Blood pressure readings above 95th percentile.

Results

- The Birth Weight (BW) was 755.6±147.9 g (mean ± standard deviation), their Gestational Age (GA) was 26.4±2.0 weeks, and their duration of follow up [median (interquartile range)] was 10 years (6.5-13). The prevalence of hypertension (HTN) among survivors at school age was 27% (76/281).
- Former ELBW school-age children with HTN had a lower BW and were more Small for Gestational Age (SGA) at birth than their controls [(715.8±140.8 vs. 770.4±148.2; p=0.005 and 51% (39/76) vs. 31% (64/205); p=0.001 respectively].
- Children with HTN were also sicker with a higher severity of illness score (SNAP-PE) at birth than their controls (50.1±15.6 vs. 44.2±14.3 respectively; p=0.005). Children with HTN, were more obese than their controls at the time of follow up [17% (13/76) of children with HTN had a BMI > 95th percentile vs. 8% (17/205) of their controls; p=0.03].

Gestational Age (weeks)	26.4±2.0
Sex (Male)	49 %
Birth weight (grams)	755.6±147.9
APGAR ≤ 5 at 1 min	70%
APGAR ≤ 5 at 5 min	18%
Race	
Caucasian	30%
African American	66%

Table 1



Conclusion:

- HTN is prevalent at school age among ELBW infants. SGA, severity of illness and obesity are risk factors for HTN among former ELBW infants.
- Future studies are needed to determine other risk factors in this highly vulnerable population.

References:

- High blood pressure in 2.5-year-old children born extremely preterm. Ann-Karin Edstedt Bonamy, MD, PhD, Karin Kallen PhD, Mikael Norman, MD, PhD. Pediatrics 2012 May;129(5):e1199-204. doi: 10.1542/peds.2011-3177. Epub 2012 Apr
- The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents. Pediatrics 2004;114:555