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**Cardiovascular outcome in children born very preterm after intrauterine growth restriction with severely abnormal umbilical artery blood flow**

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**Introduction:** Low birth weight (BW) and preterm birth have been linked to cardiovascular disease in adulthood. The combined effects of intrauterine growth restriction (IUGR) and preterm birth on cardiovascular outcome are not clarified. **Objective:** To evaluate cardiovascular function at 7 years of age in children born very preterm after IUGR with abnormal blood flow.

**Methods:** Blood pressure (BP), carotid artery intima media thickness (IMT) and cardiac size, diastolic and systolic function were assessed with a digital BP monitor and ultrasonography, respectively, in thirty 6-8 year old children born very preterm (PT) after IUGR (PT-IUGR) with a median (range) BW 650 (395-976) g and median (range) gestational age (GA) 27 (24-29) weeks. Additional 30 children born PT with BW 1010 (660-1790) g matched for GA at birth (PT-AGA) and 30 children born at term (T-AGA) with BW 3530 (3000-4390) g were studied. At the time of study, both the PT-AGA and T-AGA groups were matched for gender and age with the PT-IUGR group.

**Results:** Systolic and mean BP were elevated in both the PT-IUGR group mean(SE)(106 and 77 mm Hg) and the PT-AGA group (106 and 76 mm Hg) compared to the T-AGA group (100 and 72 mm Hg) ( $p=0.018$  and  $0.014$ , respectively). The PT-IUGR group had lower IMT compared to the T-AGA group ( $p<0.05$ ). Cardiac size and function did not differ between groups ( $p>0.1$ ).

**Conclusion:** IUGR appears to be associated with structural abnormalities in the vessel wall, whereas elevated BP during childhood is primarily related to preterm birth irrespective of fetal growth impairment.