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COMPARISON OF MOTOR OUTCOMES BETWEEN CHILDREN WITH UNIVENTRICULAR AND BIVENTRICULAR CRITICAL CONGENITAL HEART DISEASE NOT DIAGNOSED WITH CEREBRAL PALSY/ACQUIRED BRAIN INJURY

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Background:
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Objective:
To compare the frequency of motor impairment between preschool children with univentricular and biventricular critical congenital heart disease (cCHD) not diagnosed with cerebral palsy/acquired brain injury, to describe and compare their motor profiles, to explore predictors of motor impairment in each group.

Methods:
Comparison study within an inception cohort that included 166 preschool children with cCHD who underwent cardiac surgery at ≤6 weeks of age (2009-2014). Children with cerebral palsy/acquired brain injury and/or IQ <70 were excluded. Motor skills were assessed with the Movement Assessment Battery for Children-2(MABC-2). Results for each category (Manual Dexterity/Aiming-catching/Balance, and total test are expressed in standard scores (SS)(mean 10, SD3). Total MABC-2 scores <5th percentile indicate motor impairment. χ^2 test was used to compare groups. Predictors of motor impairment were analyzed using multiple logistic regression analysis.

Results:
At a mean age of 55.4 (SD 3.77) months, 119 children (85 (71.4%) biventricular; 34 (28.6%) univentricular) underwent testing with the MABC-2. 10/75 (11.8%) biventricular cCHD, and 11/34 (32.4%)(p<0.001) univentricular cCHD had total MABC-2 scores <5th percentile. SS for each category were: Manual dexterity 8.37 (3.9) vs. 6.85 (4.3)(p=0.6), Aiming/catching 10.07 (2.9) vs. 9.06 (3.8)(p=0.12), Balance 8.84 (2.8) vs. 6.97 (2.5)(p=0.001), Total test 8.73 (2.9) vs. 6.44 (2.8)(p<0.001) for children with biventricular and univentricular cCHD respectively. Independent OR for motor impairment in children with biventricular cCHD was presence of chromosomal abnormality OR 10.9(CI 2.13-55.8)(p=0.004); in children with univentricular cCHD independent OR were: postoperative day 1-5 highest lactate(mmol/L), OR 1.65 (CI 1.04-2.62)(p=0.034), and dialysis requirement anytime before the 4.5 year old assessment, OR:7.8 (CI1.08-56.5)(p=0.042).

Conclusion:
Preschool children with univentricular cCHD are at higher risk of motor impairment than those with biventricular cCHD. While those with biventricular cCHD have mean SS within 1 SD from

mean, children with biventricular cCHD and chromosomal abnormalities are also at risk for motor impairment.