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Intellectual Function in Prematurely born School-aged Children with Congenital Heart Disease.

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OBJECTIVES: Few studies investigated neuro-developmental outcome in very low birth weight (VLBW) infants with congenital heart disease (CHD). The purpose of this study was to define the intellectual function of prematurely born school-aged children with CHD.

METHODS: We reviewed 456 patients who admitted in our neonatal intensive care unit because of VLBW infants from January 2000 to December 2006. The isolated patent duct arteriosus and patent foramen ovale were excluded from CHD. A standardized test of intelligence (Wechsler Intelligence Scale for Children, 3rd edition, Japanese version) performed at 6 years old was use to evaluate intellectual function. The data were compared between the CHD and no-CHD groups.

RESULTS: The CHD was detected in 27 infants. The most common lesions were ventricular septal defect (VSD) (n=9,[33.0%]) coarctation of aorta (CoA) (n=3, [25.0%]). At 6 years old, 18 patients were survived in the CHD group and 371 in the no-CHD group, respectively. The mortality was higher in the CHD group than that in the no-CHD group (33.3% vs. 13.5%, p<0.05). The CHD group consisted of 8 patients (VSD 3, VSD after surgery 1, Double outlet of right ventricle and pulmonary stenosis after surgery 1, CoA after repair 2, Congenital aortic regurgitation 1 patient), excluding 2 of cerebral palsy, 4 of lost follow-up and 4 patients due to other test. The non CHD group consisted of 238 patients, excluding 6 of cerebral palsy, 84 of lost follow-up, and 43 pts due to other test. Full Scale IQ in prematurely born school-aged children (n=246) was slightly lower than published data in normal children. However, compared with non CHD-group, there was no significant difference in Full Scale IQ (86.1±14.0), verbal IQ (90.4±14.8) and performance IQ (85.1±13.8) in the CHD group. Also, no difference for verbal comprehension, perceptual organization, freedom from distractibility and processing speed score were found between the CHD and no-CHD group.

CONCLUSIONS: CHD is associated with increased mortality in VLBW infants. When VLBW infants with CHD are survived, similar intelligence capacity to prematurely born school-aged children without CHD may be expected.