

Do children who have been operated on for aortic arch during the first months of life need educational and psychotherapeutic support?

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Objective:

Study of the neuropsychological development of school-age children who have been operated on during the first weeks of life for hypoplasia of the aortic arch using selective anterograde cerebral perfusion.

Methods:

Neuropsychological analysis of children who have been operated on for aortic arch during the period 2004-2012 in our center. We evaluated their intelligence, psycho-linguistic aptitudes, attention, behavior, memory, motor functions and autistic characteristics.

Primary outcome: Need for educational or psychotherapeutic support for school age children.

Criteria for inclusion: School age children who are currently alive, who were operated on through aortic arch surgery using selective anterograde cerebral perfusion.

Criteria for exclusion: Prematurity less than 34 weeks of gestational age and genetic alteration that affects neuropsychological development.

Results:

52 patients were included. 57% male and 43% female. Average age of intervention 1.5 months (range 10 days to 9 months). Average weight during surgery: 3.5 Kg. (range: 1.9 kg-9 kg). Surgical technique: 36% aortic arch repair exclusively and 64% using aortic arch repair and intracardiac surgery. Average time of extracorporeal circulation: 150 minutes (range: 63-480 minutes). Average time of selective anterograde cerebral perfusion: 32 minutes (range: 18-63 minutes). Attention deficit: 35%. Receiving Methylphenidate treatment: 15%. Intelligence: 57% normal, 28% borderline. Severe intellectual disability: 8%. Speech: 64% normal, 16.7% constitutional speech delay, 9.5% mixed disorder, communication disorder with autistic characteristics: 4.8%. Motor function: 26% normal, 65% fine motor alteration. 65% have required school support at some point in time.

Conclusions:

The majority of children who have received aortic arch surgery early in life require educational support. It is important to study the long term evolution of children operated on due to congenital heart disease in order to improve surgical techniques, understand the long term prognosis and to be able to initiate preventative and therapeutic treatment that will help improve the quality of life of operated children and their families.