

**P-296**

### **Effects of Aortic Arch Surgery on Child Neurological Development**

*Sánchez R., Polo M.L., Rey J., Tirado P., Deiros L., González A., Herrera C., Guereta L., Lamas M.J., Centella T., Uceda A., Climent F., Rodríguez A., García M., Arreo V., Balbacid E., Abelleira C., Ortega M., Labrandero C., Sanz E., Cartón A., Larraya F., Aroca A.  
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#### **Objectives**

Study the neurophysiological alterations of children who have undergone aortic arch surgery through Selective Cerebral Perfusion.

#### **Methods**

Prospective cohort design. The sample consists of children less than 3 years old at the time of repair surgery, with biventricular physiology, operated on aortic arch pathology using cardiopulmonary bypass and SCP, from August 10, 2004 to May 24, 2016.

A sample of 81 patients was selected, of whom those who were older than 5 years were evaluated by a child psychologist.

#### **Results**

We conducted a study on the patients over 5 years of age (51 boys and girls), where it was observed that at the intelligence level there is not a significant difference with the general population. Perhaps greater lability and dispersion in the results of verbal intelligence is observed. On the other hand, there are clear significant alterations in executive abilities, especially in the capacity to process information (memory and association); however, not as much in the input and output of the information. We detected that this group of children mainly has a delay in the development of auditory memory, visual integration and auditory association. We observed a clear relationship between those children with the diagnosis of ADD and the poor performance in auditory memory tests.

35% were diagnosed with Attention-deficit disorder (ADD) (18 cases out of 51 studied). It is estimated that the prevalence of ADD in the general population of wealthy countries is around 10%.

#### **Conclusions**

Patients with an aortic arch pathology operated on during the three year of life using SCP require a neuropsychological follow-up in addition to cardiological, to detect alterations related to learning disorders and to establish treatment of such lesions, if applicable.