

## PW3-9

### Intellectual outcome in children after complex cardiac surgery: Arterial switch operation vs. total cavopulmonary connection

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**Introduction:** For both groups, patients after arterial switch operation (ASO) for d-transposition of the great arteries (d-TGA) and children with functional single ventricle after total cavopulmonary connection (TCPC), a lower intellectual function compared to the general population has been reported (e.g. ASO: Bellinger et al., 2004, Karl et al., 1999; TCPC: Forbess et al., 2001, Sarajuuri et al., 2007). The purpose of the present study was to compare intellectual outcome of these two groups of patients.

**Methods:** In 29 patients after ASO for d-TGA (aged 4 to 12 years; mean age  $7.5 \pm 2.5$  years) and 89 patients with functional single ventricle after TCPC (aged 3 to 12 years; mean age  $7.5 \pm 2.5$  years) intelligence was assessed by the Kaufman-Assessment Battery for Children (K-ABC; German version). The K-ABC measures two aspects of intellectual function, that is fluid intelligence ("mental processing scale" or "intelligence scale") and crystallized intelligence ("achievement scale") on different scales. For analysis, the mean test scores of the groups were compared to each other.

**Results:** Overall, patients after TCPC achieved lower mean scores on all subscales of the K-ABC than children after ASO: On the *fluid intelligence scale*, they scored descriptively but not significantly lower ( $93.2 \pm 12.2$ ) than patients after ASO ( $96.1 \pm 10.1$ ,  $p = .13$ ). Aside from two subtests – "gestalt closure" and "number recall" –, they scored descriptively lower on all subtests of this scale. On the *crystallized intelligence scale*, they achieved a mean score of  $92.1 (\pm 14.8)$ , which was significantly lower than the mean score of children after ASO ( $97.3 \pm 11.6$ ,  $p < .05$ ). They showed a descriptively worse performance on all subtests of this scale.

**Conclusions:** Patients with functional single ventricle after TCPC achieve lower mean fluid and crystallized intelligence scores than children after ASO for d-TGA. These findings are consistent with the report of Brosig et al. (2007). Patients after TCPC especially require careful observation of neurodevelopmental outcome and appropriate interventions when indicated.