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## Cognitive development of school-age hypoplastic left heart syndrome survivors: A single center study

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**Introduction & Aim:** Neurological and radiologic research results show an abnormal cerebral micro-structure as well as abnormal neurodevelopment in patients treated for hypoplastic left heart syndrome. The aim of this study was to assess the varying cognitive performance these children have developed in dependence upon prenatal diagnosis, surgical techniques, surgical learning effects, anatomy, perfusion techniques, gender, pedagogic and sociodemographic parameters in comparison to age-adjusted normative values.

**Methods:** School-age children (6.3-16.9 years) with hypoplastic left heart syndrome, who were treated at the Children's Heart Center Linz between 1997 and 2009, (n=74), were surveyed about cognitive achievements. 43 patients were examined prospectively by psychologists using the Wechsler Intelligence Scale for Children IV to determine the respective total intelligence quotient index for each child's developmental stage.

**Results:** The mean index was 84.5 (percentile rank 26.4). The statistical spread and standard deviation ranged from a minimum of 40 to a maximum of 134±20.8. The results for verbal comprehension, perceptual reasoning, and processing speed corresponded with total index results and were thus lower than the mean value of the normative values. The assessment of working memory showed results in the average. Prenatal diagnosis, type of lung perfusion, anatomy, and various cerebral perfusion techniques did not significantly affect the cognitive results of the patients.

**Conclusion:** The results show that hypoplastic left heart syndrome patients can be successfully tutored formally as well as personally in cognitive areas, although when compared to healthy children, they showed lower results for intellectual area parameters.

### Biography

Oberhuber R D works as a Clinical Health Psychologist at the Kepler University Hospital in Linz, Children's Heart Center, Austria, as well as working in private practice and teaching as Professor of Psychology at the University of Education of Upper Austria. As a heart patient (CHD) himself and as a Scientist he is uniquely able to empathize and communicate with heart patients and their families and to provide them with expert professional care.

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