

**Executive Function Impairment in 108 GUCH Patients.**

*Stolarska-Werynska U. (2), Werynski P.(1), Rudzinski A.(1), Kacinski M.(2)*

*(1) Paediatric Cardiology Department*

*(2) Paediatric Neurology Department*

Introduction: Congenital heart defects (CHD) and repairment procedures create a of risk of cognitive dysfunction. It is still not specified what is the prevalence of certain types of cognitive impairment. In our preliminary study of 45 GUCH patients post-surgery with/without extracorporeal circulation executive dysfunction was the most prevalent. We have therefore assessed the prevalence of executive impairment as compared to other types of cognitive dysfunction in a larger, more diverse GUCH patients group. The objective of the study was neuropsychological assessment of 108 consecutive GUCH patients with CHD leaving paediatric cardiology care after reaching 18 years of age in the years 2011-2014. The material: 108 patients aged  $x 17.0 \pm 19.4$  years, 56 M/ 52 F, after surgical, interventional, pharmacological treatment or no-treatment (14CoAo, 27ASD, 27VSD, 15AVS/AVR, 8PVS, 1Cor Triatr., 4dTGA, 10TOF, 1CAVC, 1 DMGA.DORV.). Methods: Wechsler Intelligence Scale, Wisconsin Card Sorting Test, Verbal Fluency test, clinical trials assessing memory, attention, praxis, abstract thinking and visuospatial functions. Results: Among all cognitive disorders frontal impairment was the most common dysfunction in all patients, both as compared to population normative data and to other types of cognitive impairment. Only 9 out of 108 pts (8,3%) achieved normal results on all executive function measures (Wisconsin Card Sorting Test; Formal Verbal Fluency Test; praxis examination; Wechsler subtests: Block Design, Similarities; Rey-Osterrieth Complex Figure Test – copy trial score). Formal verbal fluency generated the lowest scores, with 89,8% scores below normal (97pts). WCST results were higher, with 31% scores below normal (Total Errors score), difficulties were noted in praxis examination- 61 pts (56,5%), Similarities- 26 pts (24%), and Block Design- 17 pts (15,7%). The distribution of executive dysfunction had no significant correlation with the type of CHD, whereas the frequency and intensity of other cognitive dysfunctions (visuospatial abilities, memory, learning) show a tendency to appear more often in conjunction with certain types of CHD (eg.visuospatial/verbal memory dysfunction in 85,4% CoAo pts compared to 60% in other CHDpts). Conclusions: Regardless of CHD type, complexity, or treatment (surgery, catheterization, pharmacology, no-treatment) executive dysfunction is the most common neurodevelopmental abnormality among GUCH patients, as compared to other cognitive dysfunctions.