Lifelong CHD and Heart Health in the Young

Session Title: Adults with Congenital Heart Disease: Predictors, Cost and Quality

Abstract 17639: Predictors of Poor Neurocognitive Performance and Neuropsychological Phenotypes in Adolescents and Young Adults With Congenital Heart Disease

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Abstract

Objectives: to determine the predictors of neurocognitive performance (NP) of patients with Congenital Heart Disease (CHD), analysing its relation to parameters of fetal development, as head circumference (HC), weight (W) and length (L) at birth, neonatal parameters (APGAR 1, 5), quality of life (QOL), psychiatric morbidity (PM), psychosocial adjustment (PSA) and traits of personality (TP); to identify different phenotypes of NP in CHD patients.

Methods: 337 CHD patients, 189 male, ages 12 to 30 years (mean= 16.34 ± 3.12), 117 cyanotic, and 119 healthy controls (56 males, mean=18.41 ± 3.20) participated. Clinical data were collected. Neuropsychological assessment included Wechsler's Digit Test (direct and reverse) and Symbol Search, Rey's Complex Figure, BADS's Key Searching Test, Color-Word Stroop Test, Trail Making Test (A, B) and Logical Memory Task. Participants were interviewed on social support, family educational style, self-image, physical limitations, completed a psychiatric interview (SADS-L) and self-report questionnaires on QOL (WHOQOL-BREF), PSA (YSR and ASR) and TP (NEOPI-R). HC, W and L and APGAR were collected.

Results: CHD patients had a significantly worse NP than healthy controls in all tests, and the cyanotic worse than the acyanotic patients. Several correlations were apparent between fetal parameters (HC, W and L) and neuropsychological abilities in CHD. However, the HC was the main predictor of bad NP later on in CHD patients ($R=0.435$; $R2=0.189$; $F=14.692$; $p=0.000$; $\beta=0.201$; $t=2.487$; $p=0.016$). We identified 3 neurocognitive phenotypes in CHD patients, minimally, moderately and globally impaired. The last showed lower HC ($p=0.003$), W ($p=0.022$) and L, and a bigger number of retentions in school ($p=0.017$) than the first. The last reported more aggressive behaviors.than the other 2 ($p=0.007$; $p=0.006$) and their caregivers reported more social ($p=0.025$), thought ($p=0.041$) and attention problems ($p=0.001$) in their children than the parents of the other 2.

Conclusion: CHD patients have worse NP than controls; small HC at birth was the main predictor of poor NP; We identified 3 patterns of neurocognitive disability among CHD patients: mild, moderate and severely impaired, all showing significant differences compared to controls.

Key Words:

neurocognitive disabilities

congenital heart disease

quality of life