**Article: EPA-0673**
**Topic: EPW13 - Psychopathology and Cognition**

# COGNITIVE FUNCTION AND CEREBRAL STRUCTURE IN CHILDREN WITH TYPE 1 DIABETES

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Functional and structural changes within the central nervous system have been documented in patient with type 1 diabetes. .

**Objective:** is to assess the cognitive function and cerebral structure in children with type 1 diabetes 5 years after the onset of disease who are exposed to recurrent episodes of moderate and severe hypoglycemia.

**Methods:** In this cross-sectional comparative study forty patients with type 1 diabetes 5 years after the onset of disease and 40 healthy control subjects age and sex matched were included. All diabetic children and controls were subjected to neuropsychologic (NP) testing, and 20 diabetic children were subjected to magnetic resonance imaging (MRI) scans of the brain. Diabetes onset age, preceding severe hypoglycemia exposure, and diabetes duration were examined as potential correlates of cognitive and neuroradiological differences. No participants had previous neuropsychological pathology.

**Results:** Children with type 1 diabetes performed more poorly than control subjects on measures fluid intelligence (performance IQ), memory, attention, excutive function, problem solving, abstract reasoning ability and knowledge (general and social knowledge). Diabetics and control groups had not differed on a measure of full-scale and verbal IQ. There was significant association between the severity of hypoglycemia and cognitive dysfunction. MRI brain showed subcortical arteriosclerotic leucoencephalopathy (SASL) in 55% of subjects, prominent perivascular (Virchow. Robin) space in 60%, and prominent lateral ventricle in 15% of the cases.

**Conclusion:** Children with type 1 diabetes who exposed to frequent hypoglycemic episodes have poorer neuropsychological profiles than healthy control subjects and have structural MRI brain changes.

https://doi.org/10.1016/S0924-9338(14)78041-1 Published online by Cambridge University Press