Older age at onset of type 1 diabetes associated with lower brain connectivity later

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People diagnosed with type 1 diabetes in later childhood have weaker brain connectivity in midlife compared to those who were diagnosed at earlier ages according to a University of Pittsburgh Schools of the Health Sciences study.

The findings are reported in a special issue of *Psychosomatic Medicine* that is focused on diabetes, obesity and the brain. Sixty-six middle-aged adults (ages 32 to 58) who were diagnosed with type 1 diabetes as children participated in the study.

"Other studies have shown an association between earlier onset type 1 diabetes and cognitive difficulties, so we expected to find that people with earlier age of onset would have weaker connections between brain regions," said John Ryan, Ph.D., assistant professor of psychiatry at Pitt. "But instead, we found that those who were diagnosed later in childhood had the weaker brain connections as they aged."

All of the study participants had onset of type 1 diabetes before age 18 and were enrolled in the Pittsburgh Epidemiology of Diabetes Complications Study, which is an ongoing investigation led by Caterina Rosano, M.D., M.P.H., at Pitt's Graduate School of Public Health documenting long-term complications of type 1 diabetes among patients at Children's Hospital of Pittsburgh of UPMC between 1950 and 1980.

The participant group is one of the few in the country in which people with childhood onset type 1 diabetes have been followed throughout their lifespan. "Due to advances in treatments, people with type 1 diabetes are living longer. But we don't yet understand how diabetes and aging interact in the brain," Dr. Ryan noted.

"The mechanisms underlying these associations are not yet clear," he said. "However, the relationships between age of diagnosis and connectivity was stronger in older participants, supporting a model of diabetes as accelerated aging."

Provided by University of Pittsburgh Schools of the Health Sciences