Medical Xpress

Genetic risk for schizophrenia is connected to reduced IQ

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The relationship between the heritable risk for schizophrenia and low intelligence (IQ) has not been clear. Schizophrenia is commonly associated with cognitive impairments that may cause functional disability. There are clues that reduced IQ may be linked to the risk for developing schizophrenia. For example, reduced cognitive ability may precede the onset of schizophrenia symptoms. Also, these deficits may be present in healthy relatives of people diagnosed with schizophrenia.

In a remarkable new study published in *Biological Psychiatry*, Dr. Andrew McIntosh and his colleagues at the University of Edinburgh provide new evidence that the genetic risk for schizophrenia is associated with lower IQ among people who do not develop this disorder.

The authors analyzed data from 937 individuals in Scotland who first completed IQ testing in 1947, at age 11. Around age 70, they were retested and their DNA was analyzed to estimate their genetic risk for schizophrenia.

The researchers found that individuals with a higher genetic risk for schizophrenia had a lower IQ at age 70 but not at age 11. Having more schizophrenia risk-related gene variants was also associated with a greater decline in lifelong cognitive ability.

"If nature has loaded a person's genes towards schizophrenia, then there is a slight but detectable worsening in cognitive function between

childhood and old age. With further research into how these genes affect the brain, it could become possible to understand how genes linked to schizophrenia affect people's cognitive function," said McIntosh.

These findings suggest that common genetic variants may underlie both cognitive aging and risk of schizophrenia.

"While this study does not show that these common gene variants produce schizophrenia per se, it elegantly suggests that these variants may contribute to declines in intelligence, a clinical feature associated with schizophrenia," commented Dr. John Krystal, Editor of *Biological Psychiatry*. "However, we have yet to understand the development of cognitive impairments that produce disability in young adulthood, the period when schizophrenia develops for many affected people."

Clearly, more research is necessary, but this new study adds to the growing and substantial effort to understand how the gene variants that contribute to the development of schizophrenia give rise to the cognitive disability commonly associated with it.

More information: The article is "Polygenic Risk for Schizophrenia Is Associated with Cognitive Change Between Childhood and Old Age" by Andrew M. McIntosh, Alan Gow, Michelle Luciano, Gail Davies, David C. Liewald, Sarah E. Harris, Janie Corley, Jeremy Hall, John M. Starr, David J. Porteous, Albert Tenesa, Peter M. Visscher, and Ian J. Deary (doi: 10.1016/j.biopsych.2013.01.011). The article appears in Biological Psychiatry, Volume 73, Issue 10 (May 15, 2013)

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