NEWS

Cognition and behavior: Regression marks autism syndrome

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12 SEPTEMBER 2012

Time course: The boy pictured above has deletions in the SHANK3 gene and went from speaking relatively normally to saying only ”yes” or ”no” as he grew older.

Characteristic symptoms of Phelan-McDermid syndrome — a disorder caused by the loss of the 22q13.3 chromosomal region — may include bipolar disorder and a sudden loss of skills during adulthood, according a study published in June in *Molecular Syndromology*[1].

In particular, the loss of **SHANK3**, one gene in the 22q13.3 region, may be responsible for these symptoms, suggests a case study published 4 August in the *European Journal of Medical Genetics*[2].

Phelan-McDermid syndrome is characterized by intellectual disability, **unusual physical features**, problems with language and other symptoms of autism. The syndrome is rare, however, and not yet fully understood. At a **conference** in July, for example, researchers presented several examples of adults with the syndrome who had **experienced sudden regression**.

In the first new study, researchers described the symptoms of seven individuals, aged 5 to 51 years, with Phelan-McDermid syndrome. Three of these individuals underwent dramatic regression as adults.

One woman was hospitalized as a result of a suspected prescription drug overdose. Following this,

she could no longer speak or recognize anyone, including her mother. The second individual lost skills twice during his lifetime. At 27, following severe manic behavior, he lost the ability to walk and to eat independently. After a septic infection at age 40, he lost even more skills, including language and continence. The third individual became bedridden after a prolonged seizure.

Four of the seven are adults, and all are diagnosed with bipolar disorder. Although bipolar disorder is not typically diagnosed in children, one of the children also shows signs of hyperactivity, suggesting manic behavior.

Each individual has a slightly different deletion within the 22q13.3 region. Three of the adults with bipolar disorder are missing two genes linked to bipolar disorder — MLC1 and BRD1 — as well as the autism-associated SHANK3 gene. However, the fourth individual has intact copies of MLC1 and BRD1, but is missing SHANK3. This suggests that mutations in SHANK3 alone could lead to bipolar disorder, the researchers say.

This is supported by the case study, which describes an 18-year-old man who has SHANK3 deletions and bipolar disorder. His language ability has gradually regressed over his lifetime and he lost bladder control at age 17.

References

1: Denayer A. *et al. Mol. Syndromol.* **3**, 14-20 (2012) **PubMed**

2: Vucurovic K. *et al. Eur. J. Med Genet.* Epub ahead of print (2012) **PubMed**