

Maternal gluten sensitivity linked to schizophrenia risk in children

May 11 2012

(Medical Xpress) -- Babies born to women with sensitivity to gluten appear to be at increased risk of developing schizophrenia and other psychiatric disorders later in life, according to new findings from Karolinska Institutet in Sweden and Johns Hopkins University, United States.

Maternal infections and other inflammatory disorders during pregnancy have long been linked to a greater risk for [schizophrenia](#) in the [offspring](#). However the current study, which will be published in the June issue of the [American Journal of Psychiatry](#), is the first to point to maternal food sensitivity as a possible culprit in the development of such disorders later in life.

"Lifestyle and [genes](#) are not the only factors that shape the risk of developing a certain disease, but factors during the pregnancy and immediately after birth can also be involved in the pre-programming of our adult health. However, this does not mean that sensitivity to certain foods invariably will cause schizophrenia, on the contrary", says Dr Håkan Karlsson, who led the study together with Dr Christina Dalman, both at Karolinska Institutet.

The team's findings are based on an examination of 764 birth records and neonatal blood samples of Swedes born between 1975 and 1985. 211 of these children subsequently developed non-affective psychoses, such as schizophrenia and delusional disorders. Using stored neonatal blood samples, the investigators measured levels of IgG antibodies - markers of

immune system reaction - triggered by the presence of the cow's milk protein casein and a protein called gliadin. Gliadin is a component of gluten, which in turn can be found in wheat, barley and rye. Because a mother's antibodies cross the placenta during [pregnancy](#) to confer immunity to the baby, a newborn's elevated IgG levels indicate an immune response to proteins in the mother.

The results of the study show that children born to mothers with abnormally high levels of antibodies to gliadin had nearly twice the risk of developing non-affective psychosis later in life, compared with children who had normal levels of gliadin antibodies. The risk for psychosis was not increased among those with elevated levels of antibodies to casein. The link persisted even after researchers accounted for other factors known to increase schizophrenia risk, such as maternal age, gestational age, birth by Caesarean section, and birth weight.

"There are studies in the past that show that people diagnosed with schizophrenia more often than others are suffering from various forms of immune responses to gluten. We will now conduct follow-up studies to clarify how gluten or sensitivity to it increases schizophrenia risk and whether it does so only in those genetically predisposed", says Dr Karlsson.

The research was funded by the Stanley Medical Research Institute, the Swedish Research Council and the Stockholm County Council. Dr Karlsson currently also works at the Johns Hopkins Children's Center in Baltimore.

More information: Håkan Karlsson, Åsa Blomström, Susanne Wicks, Shuojia Yang, Robert H. Yolken & Christina Dalman, [Maternal Antibodies to Dietary Antigens and Risk for Nonaffective Psychosis in Offspring](#), *Am J Psychiatry*, Epub ahead of print 25 April 2012, [doi: 10.1176/appi.ajp.2012.11081197](#)

Provided by Karolinska Institutet

Citation: Maternal gluten sensitivity linked to schizophrenia risk in children (2012, May 11)
retrieved 23 June 2024 from <https://medicalxpress.com/news/2012-05-maternal-gluten-sensitivity-linked-schizophrenia.html>

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