# Research rules out link between specific antibodies and spina bifida

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New research, published today in the *New England Journal of Medicine*, shows that a woman's risk of having a child with a neural tube defect (NTD), such as Spina Bifida, is not linked to folic acid related auto-antibodies. The findings refute a well publicised study in 2004, which had indicated a link between the presence of these auto-antibodies in the circulation of mothers who had children with Spina Bifida compared to those who did not.

Within an embryo, folate is essential for many developmental processes including the closure of the neural tube to make the spinal column. Folate receptors enable the uptake of the folate into cells and the research in 2004 indicated that folic acid auto-antibodies obstructed this process.

The new study conducted by a team in Trinity College Dublin in Ireland, the Health Research Board, the State University of New York and the National Institutes of Health in the US shows that folic acid related auto-antibodies are quite common throughout the Irish population, and that they are no more common in affected mothers than in other groups, including men. The study was much larger, involving 140 mothers of affected children who were recruited through the Irish Association for Spina Bifida and Hydrochephalus and 238 additional Irish participants.

'It was critical to determine whether these antibodies were, or were not, a contributory factor in NTDs that need to be screened for in the mother, because previous and current health policies concentrate on improving maternal status,' says Prof John Scott, Trinity School of Biochemistry and Immunology and a member of the National Committee on Folic Acid Food Fortification. 'We conclude with good confidence that these antibodies are not a factor in NTD risk'.

Dr Anne Molloy, School of Medicine, Trinity and lead author says; 'Since intervention trials in the early 1990s it was accepted that extra folate, either as synthetic folic acid supplements or by way of fortification, prevented the occurrence of almost all NTD births by improving maternal folate status. Our own earlier work very much agreed with this showing that even small improvements in status gave a directly proportionate reduction in NTD risk. The other well publicised research in 2004 suggested that a radically different mechanism was at work, namely the ability of a mother to absorb folic acid was at risk if these antibodies were present. In line with our original findings, we have confirmed that this is not the case.'

'This is the most definitive study to address this question to date. In addition to being an important contribution to international understanding, it is of particular importance here in Ireland, where the incidence of NTDs has traditionally been high,' says Dr Peadar Kirke, Principal Investigator at the Health Research Board.

Dr Molloy adds, "One strong point of this study is that it was performed in a joint collaboration between the TCD researchers and researchers in the State University of New York, led by Dr. Edward Quadros, who conducted the original pilot study. This ensured that laboratory differences did not account for the contradictory findings in the current study compared to the previous studies."

Maternal intake of supplements containing folic acid before and during early pregnancy is known to prevent most of these defects. Currently, the Irish Department of Health and Children recommends that women who could become pregnant should take an extra 400 micrograms of folic acid daily before conception and during the first 12 weeks of pregnancy for the prevention of neural tube defects. Similar recommendations exist in the UK. These current recommendations thus remain intact with no new requirement to screen for these folate auto-antibodies.

Source: Trinity College Dublin (news : web)