

Folic acid in early pregnancy associated with reduced risk of severe language delay in children

October 11 2011

Use of folic acid supplements by women in Norway in the period 4 weeks before to 8 weeks after conception was associated with a reduced risk of the child having severe language delay at age 3 years, according to a study in the October 12 issue of *JAMA*.

"[Randomized controlled trials](#) and other studies have demonstrated that periconceptional [the period from before conception to [early pregnancy](#)] [folic acid supplements](#) reduce the risk of [neural tube defects](#). To our knowledge, none of the trials have followed up their sample to investigate whether these supplements have effects on [neurodevelopment](#) that are only manifest after birth," the authors write.

Christine Roth, M.Sc., Clin.Psy.D., of the Norwegian Institute of Public Health, Oslo, and colleagues conducted a study to investigate whether maternal use of folic acid supplements was associated with a reduced risk of severe [language delay](#) among [offspring](#) at age 3 years. "Unlike the United States, Norway does not fortify foods with folic acid, increasing the contrast in relative folate status between women who do and do not take folic acid supplements," the researchers write. [Pregnant women](#) were recruited for the study beginning in 1999, and data were included on [children](#) born before 2008 whose mothers returned the 3-year follow-up questionnaire by June 16, 2010. Maternal use of folic acid supplements within the interval from 4 weeks before to 8 weeks after conception was the exposure. The primary outcome measured for the

study was children's language competency at age 3 years as gauged by maternal report on a 6-point ordinal language grammar scale. Children with minimal expressive language (only 1-word or unintelligible utterances) were rated as having severe language delay.

The main analysis for the study included 38,954 children (19,956 boys and 18,998 girls). Of these children, 204 (0.5 percent) were rated as having severe language delay (159 [0.8 percent] boys and 45 [0.2 percent] girls). Children whose mothers took no dietary supplements in the specified exposure interval were the reference group (n = 9,052 [24.0 percent], with severe language delay in 81 children [0.9 percent]). Data for 3 patterns of exposure to maternal dietary supplements were: other supplements, but no folic acid (n = 2,480 [6.6 percent], with severe language delay in 22 children [0.9 percent]); folic acid only (n = 7,127 [18.9 percent], with severe language delay in 28 children [0.4 percent]); and folic acid in combination with other supplements (n = 19,005 [50.5 percent], with severe language delay in 73 children [0.4 percent]).

The researchers write that maternal use of supplements containing folic acid within the period from 4 weeks before to 8 weeks after conception was associated with a substantially reduced risk of severe language delay in children at age 3 years. "We found no association, however, between maternal use of folic acid supplements and significant delay in gross motor skills at age 3 years. The specificity provides some reassurance that there is not confounding by an unmeasured factor. Such a factor might be expected to relate to both language and motor delay."

The authors add that to their knowledge, no previous prospective observational study has examined the relation of prenatal folic acid supplements to severe language delay in children.

"If in future research this relationship were shown to be causal, it would have important implications for understanding the biological processes

underlying disrupted neurodevelopment, for the prevention of neurodevelopmental disorders, and for policies of folic acid supplementation for women of reproductive age."

More information: *JAMA*. 2011;306[14]:1566-1573

Provided by JAMA and Archives Journals

Citation: Folic acid in early pregnancy associated with reduced risk of severe language delay in children (2011, October 11) retrieved 4 May 2023 from <https://medicalxpress.com/news/2011-10-folic-acid-early-pregnancy-severe.html>

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