

AAN 77th ANNUAL MEETING ABSTRACT

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Abstract Title: Folic Acid in Pregnancy and Neuropsychological Outcomes at Age 6-Years-Old in the MONEAD Study

Press Release Title: Are higher doses of folic acid in pregnancy safe?

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Objective: To assess the relation of folic acid supplementation during pregnancy and neuropsychological outcomes at age 6-years-old in children of women with epilepsy (WWE) and healthy women (HW).

Background: Folic acid supplementation in pregnancy is known to reduce malformations and improve cognitive outcomes, but concerns have been raised over risks of higher folate doses.

Design/Methods: The Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs (MONEAD) study is a prospective, observational, multi-center investigation which enrolled WWE and HW during pregnancy. The *a priori* primary neurodevelopmental outcome for children is age 6 Verbal Index score (VIS) calculated by averaging Differential Ability Scales-II Word Definitions and Verbal Similarities subtests, Expressive One-Word Picture Vocabulary Test-4, Peabody Picture Vocabulary Test-4, and Neuropsychological Assessment-2 Phonological Processing, Comprehension of Instructions, and Sentence Repetition subtests. The main behavioral outcome is the Adaptive Behavior Assessment System (ABAS-3) General Adaptive Composite Standard Score. We compared the outcomes in children as a function of folate supplementation using linear regression adjusting for potential confounders chosen via a stepwise selection algorithm.

Results: Analyses include 345 children of WWE and HW. Adjusted LS Means (95% CI) for children's VIS were higher in those using folic acid in the first 12 weeks of pregnancy (107.5 (106.5, 108.5)) vs. not (95.8 (86.8, 104.8)), $p=0.012$. Similarly, adjusted LS Means (95% CI) for ABAS-3 were higher when folic acid was used the first 12 weeks of pregnancy (102.4 (101.3, 103.4)) vs. not (82.2 (73.9, 90.5)), $p<0.001$. Outcomes were similar for low dose folic acid ($>0-0.4\text{mg/day}$) and high dose ($>4.0\text{mg/day}$) for VIS (109.8 (104.7, 114.9) vs. 108.1 (105.9, 110.3)) and for ABAS-3 (102.5 (97.3, 107.8) vs. 102.7 (100.4, 105.1)).

Conclusions: Folic acid early in pregnancy was associated with improved verbal abilities and adaptive behavior of children at age 6-years-old. No risk of higher doses was apparent in this cohort.

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