Pre-conceptual and prenatal supplementary folic acid and multivitamin intake, behavioural problems, and hyperkinetic disorders: A study based on the Danish National Birth Cohort (DNBC).

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Abstract

OBJECTIVE:
To evaluate whether early folic acid or multivitamin supplementation during pregnancy prevents the diagnosis of hyperkinetic disorders (HKD), treatment for attention deficit hyperactivity disorder (ADHD), and ADHD-like behaviours reported by parents participating in the DNBC for children at age 7.

METHODS:
HKD diagnosis and ADHD medication use data were obtained from the Danish National Hospital, Central Psychiatric and Pharmaceutical registers. We estimated hazard ratios (HRs) for HKD diagnosis and ADHD medication use and risk ratios (RRs) for parent-reported ADHD behavior collected with the Strength and Difficulties Questionnaire (SDQ), comparing children whose mothers took folic acid or multivitamin supplements early in pregnancy defined as starting periconceptionally (4 weeks prior to their last menstrual period (LMP)) through 8 weeks after their LMP (4-8 weeks), to children whose mothers indicated no supplement use for the same entire period.

RESULTS:
We identified 384 children (1.1%) with a hospital diagnosis for HKD and 642 children (1.8%) treated with ADHD medication. We found no association between risk of HKD diagnosis or intake of ADHD medication and early maternal folic acid use. However, early multivitamin use was associated with an approximately 30% reduction in risk for HKD diagnosis (aHR: 0.70, 95% CI: 0.52-0.96) and 21% reduction in treatment with ADHD medication (aHR: 0.79, 95% CI: 0.62-0.98). We observed a reduced risk in parent-reported ADHD behaviours, but these results were attenuated after adjustment.

CONCLUSION:
Our data suggest that multivitamin use in early pregnancy may reduce the risk of HKD diagnosis and treatment for ADHD in the offspring.