Maternal Iodine Intake and Offspring Attention-Deficit/Hyperactivity Disorder: Results from a Large Prospective Cohort Study.

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Abstract

Current knowledge about the relationship between mild to moderately inadequate maternal iodine intake and/or supplemental iodine on child neurodevelopment is sparse. Using information from 77,164 mother-child pairs in the Norwegian Mother and Child Cohort Study, this study explored associations between maternal iodine intake and child attention-deficit/hyperactivity disorder (ADHD) diagnosis, registered in the Norwegian Patient Registry and maternally-reported child ADHD symptoms at eight years of age. Pregnant women reported food and supplement intakes by questionnaire in gestational week 22. In total, 1725 children (2.2%) were diagnosed with ADHD. In non-users of supplemental iodine (53,360 mothers), we found no association between iodine intake from food and risk of child ADHD diagnosis ($p = 0.89$), while low iodine from food ($<200 \mu g/day$) was associated with higher child ADHD symptom scores (adjusted difference in score up to $0.08$ standard deviation ($SD$), $p < 0.001$, $n = 19,086$). In the total sample, we found no evidence of beneficial effects of maternal use of iodine-containing supplements ($n = 23,804$) on child ADHD diagnosis or symptom score. Initiation of iodine supplement use in gestational weeks 0-12 was associated with an increased risk of child ADHD (both measures). In conclusion, insufficient maternal iodine intake was associated with increased child ADHD symptom scores at eight years of age, but not with ADHD diagnosis. No reduction of risk was associated with maternal iodine supplement use.