



THYROID AND PREGNANCY

Low iodine nutrition in mothers during pregnancy is associated with lower language skills in children up to 18 months of age.

BACKGROUND

Iodine is an essential nutrient to make thyroid hormone. Adequate thyroid hormone during pregnancy is very important for baby's normal brain development. Because mothers need to make more thyroid hormone to provide for the baby and there is more iodine cleared out in urine during pregnancy, pregnant women need more iodine than non-pregnant adults. It is estimated that pregnant women do not get enough iodine intake even in some developed countries. Since enough iodine to make enough thyroid hormone in pregnancy is important for normal baby's development, this study was done to evaluate whether mother's iodine status in pregnancy is associated with the baby's development up to 18 months of age in Norway.

THE FULL ARTICLE TITLE

Markhus MW et al. 2018 Maternal Iodine Status is Associated with Offspring Language Skills in Infancy and Toddlerhood. *Nutrients*. 10(9). pii: E1270. doi: 10.3390/nu10091270.

SUMMARY OF THE STUDY

A total of 851 mother-child pairs in Norway were included in this study. Pregnant women were enrolled when they were 16-26 weeks pregnant between 2011 and 2012. Their children from singleton pregnancy were enrolled after birth. None of mothers in this study took thyroid medications. Urine samples were collected from pregnant women when they were enrolled. Women were asked whether they were taking iodine-containing supplements for 3 months before enrollment in a questionnaire. Children's development was assessed using the Bayley Scales of Infant and Toddler Development, third edition (Bayley-III) at 6, 12, and 18 months of age.

The mean gestational age at the time of urine collection was 23.7 weeks. The median urinary iodine concentration (UIC) was 78 µg/L (range 4-750 µg/L). A total of 676 (79%) of women had UICs less than 150 µg/L, which is the cutoff recommended by the World Health Organization for adequate iodine nutrition status in pregnant women in

a population. A total of 242 (28%) women had UICs less than 50 µg/L, which indicates severe iodine deficiency. The median UIC was higher in 155 (18%) women who were taking iodine-containing supplements during pregnancy compared to those who were not taking iodine-containing supplements (92 µg/L vs. 77 µg/L, respectively).

Children of women with UICs < 100 µg/L had lower scores in language skills compared to children of women with UICs ≥ 100 µg/L. Mother's UICs did not have significant association with children's motor skills. Mother's use of iodine-containing supplements was not associated with any benefit in children's development up to 18 months of age.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this study of mother-child pairs from Norway, low iodine levels in mothers below 100 µg/L in pregnancy was associated with lower language skills in children up to 18 months of age. Taking iodine-containing supplements later in pregnancy did not show any beneficial effects on children's development.

Because there is increased need for iodine in pregnancy, pregnant women and their young children can be particularly sensitive to effects of iodine deficiency. This study supports need for adequate iodine nutrition in pregnant women. The American Thyroid Association currently recommends for women planning pregnancy, pregnant, or breastfeeding to take supplements containing 150 µg of iodine a day. Although taking iodine-containing supplements did not show beneficial effects in this study, it may be because the use of supplements were later in pregnancy in the second trimester. In addition, women who were taking iodine-containing supplements also had low urine iodine levels below 150 µg/L. Therefore, it would be important for pregnant women or women planning pregnancy to have adequate iodine nutrition before or early in pregnancy to prevent adverse effects on baby's development.

— Sun Y. Lee, MD





THYROID AND PREGNANCY, continued

ATA THYROID BROCHURE LINKS

Iodine Deficiency: <https://www.thyroid.org/iodine-deficiency/>

Pregnancy and Thyroid Disease: <https://www.thyroid.org/thyroid-disease-pregnancy/>

ABBREVIATIONS & DEFINITIONS

Iodine: an element found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. Common foods high in iodine include iodized salt, dairy products, seafood and some breads.

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

UIC: Urinary iodine concentration — Measure of iodine levels in urine. This is used to estimate status of iodine nutrition in a population level.

www.thyroid.org/donate/

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