



THYROID AND PREGNANCY

Brain development in pre-term infants born of mothers with hypothyroidism

BACKGROUND

Thyroid hormone is essential for normal brain development in the baby during pregnancy. Mild abnormalities in thyroid function tests in pregnant women have been reported to be related to poor mental development of children, but most studies did not focus on outcomes of pre-term infants. These infants, born before 34 weeks of pregnancy, often have lower thyroid hormone levels than full-term babies and are more likely to have brain abnormalities. The aim of this study was to examine the relationship between the thyroid hormone levels in pregnant women at the time of delivery of pre-term infants and the future mental development of the children.

THE FULL ARTICLE TITLE

Williams F et al Mild maternal thyroid dysfunction at delivery of infants born ≤ 34 weeks and neurodevelopmental outcome at 5.5 years. *J Clin Endocrinol Metab.* April 4, 2012 [Epub ahead of print]. doi:10.1210/jc.2011-2451.

SUMMARY OF THE STUDY

The Millenium study enrolled women and infants between 1998 and 2001 in Scotland. Pre-term infants born on or before 34 weeks of pregnancy were enrolled from Scottish neonatal intensive care units. The investigators measured levels of TSH, T_4 and FT_4 in women within one hour of delivery of the infant. At age 5 ½ years, the children

had their mental development tested using the McCarthy Scale. In statistical analyses adjusted for important risk factors, decreasing TSH measurements in mothers were associated with decreases in various scores within the McCarthy Scale in these children. However, decreasing free T_4 measurements were associated with increases in various scores of the McCarthy Scale.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The main conclusion of the authors was that higher levels of TSH in the mother at delivery of pre-term infants was associated with lower mental development scores of the children at 5 ½ years. These findings reinforce the importance for women with hypothyroidism to have their TSH measurements closely followed in pregnancy and thyroid hormone doses adjusted as needed to avoid TSH elevations.

— Anna Sawka, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: <http://www.thyroid.org/what-is-hypothyroidism>

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

Thyroid Function Tests: <http://www.thyroid.org/blood-test-for-thyroid>

ABBREVIATIONS & DEFINITIONS

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

Thyroxine (T_4): the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce

Triiodothyronine which causes most of the effects of the thyroid hormones.

TSH: thyroid stimulating hormone – produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.