A new study shows that slightly higher (although normal) levels of TSH in pregnancy are associated with an increased risk of miscarriage, fetal, or neonatal death.

Previous studies have confirmed that hypothyroidism causes a four-fold risk of miscarriage in the second half of pregnancy. Hypothyroidism in pregnancy has also been associated with fetal developmental disabilities and mental retardation.

The Study

In a recent study published in the March 9, 2009 issue of the European Journal of Endocrinology women with average TSH levels of 1.48 mu/L had a high risk of child loss compared to women with TSH levels of 1.11 mu/L. The risk of child loss increased by 60 percent for every doubling in TSH concentration.

In the study, researchers at the University of Amsterdam in the Netherlands evaluated levels of thyroid stimulating hormone (TSH or thyrotropin), free thyroxine and thyroid peroxidase (TPO) antibodies in 2497 Dutch pregnant women. Women with overt thyroid disease, either Graves’ disease or Hashimoto’s thyroiditis, were excluded from the study.

Results

Among the 2497 women, 27 women experienced child loss either during pregnancy or shortly after childbirth. The 27 women who experienced child loss had TSH levels with a mean of 1.48 mu/L compared to a mean TSH level of 1.11 mu/L in the women who did not experience child loss.

This association remained even after adjustments were made for smoking, age, parity, diabetes mellitus, hypertension, previous preterm and previous stillbirth/miscarriage. The FT4 level was not associated with child loss. Of the women with child loss, the FT4 level averaged 9.82 pmol/L compared to 9.58 in the control group. This is in line with early studies showing that TSH rises when thyroid hormone levels are too low for the body’s needs. Thus, because the needs for FT4 vary in women, there is no clear cut correlation between FT4 and TSH levels. Early studies, particularly the Nurses Health and Nutrition Study, have shown that most normal adults have TSH levels between 0.3 and 1.0 mu/L.

Conclusion:

The Netherlands researchers concluded that in a cohort of pregnant women without overt thyroid dysfunction, the risk of child loss increased with higher levels of maternal TSH. Maternal free T4 concentrations and child loss was not associated.

TPO Antibodies
Early studies suggested that TPO antibodies were associated with child loss in pregnancy. More recent studies of women undergoing assisted reproductive techniques have shown no association between TPO antibodies and child loss. TPO antibodies, however, have been shown in several large studies to be associated with postpartum depression. The Netherlands study also did not show an association between TPO antibodies and pregnancy loss. A higher TSH, which suggests that thyroid hormone levels may be inadequate for covering the body’s needs, seems to be the relevant factor in child loss.

Sources:
