

## **HYPOTHYROIDISM IN PREGNANCY**

### **WHAT IS NORMAL THYROID FUNCTION?**

The thyroid gland is responsible for producing thyroid hormones that regulate the body's vital functions, including heart rate, temperature, muscle growth, menstrual cycles, and energy for daily activity. Either too much or too little thyroid function can be a problem for both the parent and fetus in pregnancy.

If thyroid hormone levels are low, the body increases TSH to try to increase thyroid function to produce more thyroid hormone. Hypothyroidism is defined as a high TSH and low T4. Hyperthyroidism occurs when TSH is low and T4 is high.

Beta-HCG is a hormone produced by the placenta in large quantity in the first trimester. It is structurally very similar to TSH, and thus a small decrease in TSH and increased thyroid hormones in the first trimester is very common and normalizes by the early second trimester.

### **WHAT IS THE DIFFERENCE BETWEEN OVERT AND SUBCLINICAL HYPOTHYROIDISM?**

Overt hypothyroidism is defined by high TSH (usually over 10 mIU/L) and low thyroid hormones. Subclinical hypothyroidism is defined by a high TSH but normal thyroid hormone levels. This may suggest a small degree of thyroid dysfunction because the body's thyroid signal is high. However, because the thyroid hormone levels are still normal, this is considered "subclinical". Subclinical hypothyroidism is quite common, occurring in up to 28% of pregnancies.

### **WHAT ARE RISKS OF LOW THYROID FUNCTION?**

The fetus is entirely dependent on the maternal thyroid for the first 18 weeks of pregnancy. Overt hypothyroidism in pregnancy is associated with pre-eclampsia, anemia, miscarriage, low birth weight, stillbirth, and heart problems. Severely low thyroid function can also cause low IQ and impact cognitive ability after the baby is born. Thankfully, these are all preventable with thyroid supplementation.

### **WHAT ARE THE RISKS OF SUBCLINICAL HYPOTHYROIDISM?**

The risks of subclinical hypothyroidism are controversial, as the patient's circulating levels of thyroid hormone are still normal. The evidence has been inconsistent. Older studies have shown that subclinical hypothyroidism may be associated with pre-eclampsia and preterm labour, as well as impaired cognitive development and lower IQ in children after they are born. However, newer studies have shown no differences in outcomes between patients with and without subclinical hypothyroidism.

### **WHO IS SCREENED?**

Studies have shown that universal screening does not decrease adverse events in comparison to screening only those at high risk for thyroid disease. As such, TSH screening is recommended for patients with the any of the following:

- Personal or family history of thyroid disease
- Type 1 diabetes or other autoimmune disease
- History of preterm delivery, miscarriage, infertility
- Two or more previous pregnancies
- Body mass index over 40

- Age older than 30 years
- Head or neck radiation exposure
- Prior or current amiodarone or lithium use
- Symptoms of hypo- or hyperthyroidism such as: constipation, diarrhea, fatigue, palpitations, weight changes, heat/cold intolerance

### **WHEN AND HOW IS IT TREATED?**

Universal treatment of subclinical hypothyroidism has not been shown to improve outcomes and therefore we only treat patients at high risk for autoimmune thyroid dysfunction.

If your TSH is elevated above your centre's trimester-specific cut-off, your doctor may test you for TPO antibodies to help direct further management. If you do not have TPO antibodies, you only need medication if your TSH is extremely high (over 10.0 mIU/L).

**Med info:** Levothyroxine is a human-made form of thyroid hormone and works similarly to the natural form. It is safe to take in pregnancy.

**Quick tip!** Avoid taking thyroid medication at the same time as prenatal vitamins, dairy products, or other medications, as this impacts absorption.

*Please contact your doctor for specific information and guidance related to your pregnancy, or if you have any questions about this information.*

### **Key References**

#### **Original Research:**

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