Subclinical Hypothyroidism

The thyroid gland, a 2-inch-long, butterfly-shaped gland located just below the larynx (voice box), produces hormones responsible for one’s metabolism (use of energy by the body). The pituitary gland, located at the base of brain, secretes thyroid-stimulating hormone (TSH), which makes the thyroid produce and release thyroxine, the main thyroid hormone. The pituitary is regulated by another area of the brain called the hypothalamus, which produces thyrotropin-releasing hormone (TRH).

When thyroid function is too low, the pituitary increases its output of TSH to stimulate the thyroid to work harder. Subclinical (without obvious symptoms) hypothyroidism (low thyroid function) describes a situation in which thyroid function is only mildly low, so that the blood level of thyroxine remains within the normal range, but the blood level of TSH is elevated, indicating mild thyroid failure. Overt hypothyroidism, where the levels of thyroxine are actually below normal, is a more severe problem and may cause fatigue, weight gain, cold intolerance, dry skin, and an increased risk of heart problems. The September 22/29, 2010, issue of JAMA includes an article reporting that subclinical hypothyroidism is associated with an increased risk of coronary heart disease, especially if the levels of TSH are very high (10 mU/L or more).

Subclinical hypothyroidism is diagnosed using blood tests to measure the TSH and thyroid hormone levels. An increased level of TSH without a decreased level of thyroid hormone indicates the presence of subclinical hypothyroidism.

Risk Factors for Developing Subclinical Hypothyroidism
- Hashimoto thyroiditis—a common thyroid gland inflammation produced by antibodies against thyroid cells
- Recent treatment with
  - radioactive iodine—used for treatment of hyperthyroidism (an increased production of thyroid hormones)
  - interferon alfa—an anticancer drug
  - interleukin 2—a drug used to treat kidney cancer
- Irregular heart rhythm treatment with amiodarone
- Treatment with lithium (a mood-stabilizing drug)
- Recent pregnancy and child delivery

Treatment
Subclinical hypothyroidism can be treated with a single daily dose of thyroxine. This treatment requires monitoring of the thyroid hormone levels in the blood over several months. However, it is not certain whether it is necessary to treat subclinical hypothyroidism at all. The study in this issue of JAMA suggests that treatment might be warranted, especially if the blood TSH level is above 10 mU/L.