

Thyroid hormone receptors and reproduction.

Abstract

Thyroid disorders have a great impact on fertility in both sexes. Hyperthyroidism and hypothyroidism cause changes in sex hormone-binding globulin (SHBG), prolactin, gonadotropin-releasing hormone, and sex steroid serum levels. In females, thyroid hormones may also have a direct effect on oocytes, because it is known that specific binding sites for thyroxin are found on mouse and human oocytes. There is also an association between thyroid dysfunction in women and morbidity and outcome in pregnancy. In males, hyperthyroidism causes a reduction in sperm motility. The numbers of morphologically abnormal sperm are increased by hypothyroidism. When euthyroidism is restored, both abnormalities improve or normalize. In women, the alterations in fertility caused by thyroid disorders are more complex. Hyper- and hypothyroidism are the main thyroid diseases that have an adverse effect on female reproduction and cause menstrual disturbances--mainly hypomenorrhea and polymenorrhea in hyperthyroidism, and oligomenorrhea in hypothyroidism. In recent studies, it has become evident that it is not only changes in serum levels of SHBG and sex steroids that are responsible for these disorders, but also alterations in the metabolic pathway. Adequate levels of circulating thyroid hormones are of primary importance for normal reproductive function. This review presents an overview of the impact of thyroid disorders on reproduction.

[J Reprod Immunol. 2011 Jun;90\(1\):58-66. doi: 10.1016/j.jri.2011.02.009. Epub 2011 Jun 8.](#)

Thyroid hormone receptors and reproduction.

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Hypothyroidism might be related to breast cancer in post-menopausal women.

Abstract

An association between breast cancer and thyroid (autoimmune) diseases or the presence of thyroid peroxidase antibodies (TPOAb; a marker of thyroid autoimmune disease) has been suggested. However, little is known about whether women with thyroid (autoimmune) diseases are at increased risk for developing breast cancer. This cross-sectional and prospective cohort study investigated whether the presence of TPOAb or thyroid dysfunction is related to the presence or development of breast cancer. An unselected cohort of 2,775 women around menopause was screened for the thyroid parameters thyrotropin (TSH), free thyroxine (FT₄), and TPOAb during 1994. Detailed information on previous or actual thyroid disorders and breast cancer, and on putative factors related to breast cancer and thyroid disorders, was obtained. Clinical thyroid dysfunction was defined by both abnormal FT₄ and TSH, and subclinical thyroid dysfunction by abnormal TSH (with normal FT₄). A TPOAb concentration ≥ 100 U/ml was defined as positive (TPOAb(+)). The study group was linked with the Eindhoven Cancer Registry to detect all women with (in situ) breast cancer (ICD-O code 174) diagnosed between 1958 and 1994. Subsequently, in the prospective study, all women who did not have breast cancer in 1994 (n = 2,738) were followed up to July, 2003, and all new cases of (in situ) breast cancer and all cancer-related deaths were registered. Of the 2,775 women, 278 (10.0%) were TPOAb(+). At the 1994 screening, 37 women (1.3%) had breast cancer. TPOAbs were (independently) related to a current diagnosis of breast cancer (OR = 3.3; 95% CI 1.3-8.5). Of the remaining women, 61 (2.2%) developed breast cancer. New breast cancer was related to: (1) an earlier diagnosis of hypothyroidism (OR = 3.8; 95% CI 1.3-10.9); (2) the use of thyroid medication (OR = 3.2; 95% CI 1.0-10.7); and (3) low FT₄ (lowest tenth percentile: OR = 2.3; 95% CI 1.2-4.6). In the first 3 years follow up, the relationship between FT₄ and log-TSH was disturbed in women with a new breast cancer diagnosis. The presence of TPOAb was not related to breast cancer during follow-up. A direct relationship between thyroid autoimmunity and breast cancer is unlikely. Hypothyroidism and low-normal FT₄ are related with an increased risk of breast cancer in post-menopausal women. Studies are needed to clarify the origins of this possible association.

Thyroid. 2005 Nov;15(11):1253-9.

Kuijpers JL, Nyklíctek I, Louwman MW, Weetman TA, Pop VJ, Coebergh JW.

Hypothyroidism and low-normal FT4 are related with an increased risk of breast cancer in post-menopausal women.

[Paucity of references on this subject]