



THYROID AND PREGNANCY

Radioactive iodine therapy for the most common types of thyroid cancer does not decrease pregnancy chances in women

BACKGROUND

The number of patient diagnosed with thyroid cancer has been increasing worldwide over the last 10-20 years, including in young adults 15 to 39 years of age. The most common types of thyroid cancer are papillary and follicular thyroid cancers. These cancers are generally treated with surgery, and some patients may need radioactive iodine therapy to destroy any remaining thyroid tissue afterwards. Because patients with thyroid cancer generally do well without recurrence, and radioactive iodine therapy may have potential complications long-term, there is a trend to avoid radioactive iodine therapy unless cancer is aggressive. Indeed, current American Thyroid Association guidelines for the management of thyroid cancer do not recommend radioactive iodine therapy for low risk patient.

Radioactive iodine therapy can potentially affect a woman's fertility, or ability to become pregnant, long-term. A previous review of original studies in 2011 was limited because of small number of studies available. Blood anti-Müllerian hormone (AMH) levels are frequently used to assess ovarian reserve in women undergoing infertility treatment, as it is associated with the number of eggs obtained as a part of treatment. Recently, AMH levels have also been used to study how many eggs are available for future pregnancy in women treated for cancer. The current study reviewed original research studies to assess the potential effect of radioactive iodine therapy for thyroid cancer on fertility among young women.

THE FULL ARTICLE TITLE

Piek MW et al 2020 The effect of radioactive iodine therapy on ovarian function and fertility in female thyroid cancer patients: A systematic review and meta-analysis. *Thyroid*. Epub 2020 Nov 2. PMID: 33012254.

SUMMARY OF THE STUDY

A total of 22 original studies, including 36,215 patients, on the effects of radioactive iodine therapy treatment

for thyroid cancer on female reproductive system were selected from a search of medical literature databases, including PubMed, Embase, and Web of Science. The effects of radioactive iodine therapy treatment on menstrual cycles and timing of menopause were reviewed. A meta-analysis, which combines the results of several studies, was done to assess the effects of radioactive iodine therapy on differences in pregnancy rate and AMH levels after radioactive iodine use.

A total of 4 studies showed that women who received radioactive iodine therapy were more likely to have irregular periods that would normalize within the first year, compared to women who did not receive radioactive iodine therapy (12-31% vs 15%). Women who received radioactive iodine therapy underwent menopause at slightly younger age than women who did not receive radioactive iodine therapy (49.5 vs. 51 years). The meta-analysis of these 4 studies showed that blood AMH levels decreased by an average of 1.5 ng/ml after 1 year of radioactive iodine therapy. If a patient was 35 years or older, she may have a higher degree of decrease in AMH level from baseline, compared to a patient younger than 35 years of age. However, the meta-analysis showed that there was no significant difference in pregnancy rates at 4-6 years of follow up between patients who received radioactive iodine therapy and those who did not.

In conclusion, this study showed that radioactive iodine therapy for thyroid cancer in young women appears to be associated with a short-term menstrual irregularities and decrease in blood AMH levels after 1 year. However, these do not appear to affect the pregnancy rates long-term.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Based on the findings of this study, radioactive iodine therapy for thyroid cancer in young women does not appear to affect the ability to become pregnant long-term. However, it is still recommended for women to wait 6





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to 12 months after radioactive iodine therapy before becoming pregnant due to the radiation exposure to the ovaries. This is also consistent with the decrease in AMH levels over 1 year after radioactive iodine therapy. This is more common in older women. Thus, women who are

interested in pregnancy after treatment for thyroid cancer should have discussion regarding their pregnancy plans with their endocrinologists before radioactive iodine therapy.

— Sun Lee, MD

ATA THYROID BROCHURE LINKS

Radioactive Iodine Therapy: <https://www.thyroid.org/radioactive-iodine/>

Thyroid Cancer (Papillary and Follicular): <https://www.thyroid.org/thyroid-cancer/>

Thyroid Disease in Pregnancy: <https://www.thyroid.org/thyroid-disease-pregnancy/>

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer: the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

Follicular thyroid cancer: the second most common type of thyroid cancer.

Anti-Müllerian Hormone (AMH): a glycoprotein hormone that is made in the reproductive tissues of both males and females. In women, AMH levels can provide information about fertility, the ability to get pregnant. AMH level is often used to check a woman's ability to produce eggs that can be fertilized for pregnancy.

Meta-analysis: a study that combines and analyzes the data from several other studies addressing the same research hypothesis

Radioactive iodine (RAI): this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid.

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.

