



THYROID CANCER

In children with thyroid cancer, the initial surgery has the most impact on risk of recurrence

WHAT IS THE STUDY ABOUT?

Thyroid cancer is uncommon in children. However, children often have more extensive disease as compared to adults. Despite this, most children have a good prognosis and usually have a long life expectancy that is minimally affected by the thyroid cancer. The usual course of treatment in adults include 1) surgery to remove most of the thyroid, 2) thyroid hormone suppression therapy and 3) radioactive iodine therapy in most cases. Children may have more complications from surgery and may not tolerate high doses radioactive iodine. The aim of the study was to determine how surgical therapy and radioactive iodine affect the outcome of thyroid cancer in children.

THE FULL ARTICLE TITLE:

Hay et al. Long-term outcome in 215 children and adolescents with papillary thyroid cancer treated during 1940 through 2008. *World J Surg* 2010; 20. (Epub ahead of print)

WHAT WAS THE AIM OF THE STUDY?

The aim of the study was to determine how surgical therapy and radioactive iodine affect the outcome of thyroid cancer in children.

WHO WAS STUDIED?

The study group included 215 patients younger than age 21 who had surgery for thyroid cancer at the Mayo Clinic during a 68-year period from 1940 to 2008.

HOW WAS THE STUDY DONE?

The records of patients were reviewed as to the patient's initial presentation, treatment and pathology of their cancer. Follow-up information was obtained by correspondence with the patients, family, or attending physicians and by a review of death certificates.

WHAT WERE THE RESULTS OF THE STUDY?

A total of 96 (45%) children had a near-total thyroidectomy while 82 (38%) had a total thyroidectomy. A total of 185 (86%) also had surgery to remove the lymph nodes in the neck. A total of 192 of the 215 patients (89%) had the cancer confined to the neck and had it completely

removed. Of these 192 patients, 68 (35%) were treated with radioactive iodine and all were still living after 40 years. There was only one death from thyroid cancer in the patients that were not treated with radioactive iodine. Recurrence of the cancer was found in 61 patients (32%). In general, the outcome of disease was not significantly different between children who had been treated with radioactive iodine after the surgery and those without radioactive iodine. Overall, 15 children died of cancer other than thyroid cancer – 11 of these (73%) children had received radiation after surgery. However, only 2 received only radioactive iodine while 7 also received either external beam irradiation or radiation implants (in the 1940s).

HOW DOES THIS STUDY COMPARE WITH OTHER STUDIES?

Several other studies have shown the impact of thyroidectomy with selective removing of lymph-nodes on outcome of children with thyroid cancer. There are also several studies showing the impact of radioactive iodine on the outcome of this disease. The potential second cancer risk of radioactive iodine appears to be dependent upon the administered amount of I-131. The radiation to the whole body can be reduced when the patients are prepared with recombinant human TSH before the radioactive iodine. In addition, whole-body radiation can also be lowered by using smaller amounts of radioactive iodine, as little as 30-50 mCi, which has been shown to be as effective as 100 mCi.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that in children with thyroid cancer, the extent of the initial surgery and the presence of spread of the cancer to the neck lymph nodes has the greatest impact on the clinical outcome. Importantly, clinical outcome does not appear to be affected by radioactive iodine in most cases.

— Jamshid Farahati, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

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THYROID CANCER, continued

ABBREVIATIONS AND DEFINITIONS

Thyroidectomy — Surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

Near-total thyroidectomy — removal of nearly all of each thyroid lobe, leaving only a small portion of the thyroid gland.

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. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take pictures of the thyroid (Thyroid Scan) or to take pictures of the whole body to look for thyroid cancer (Whole Body Scan).

mCi — millicurie, the units used for I-131.

Lymph node — bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

Cancer recurrence — this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.