



THYROID CANCER

In patients with papillary microcarcinomas, PET scan is useful to identify spread of the cancer outside the thyroid in the neck

WHAT IS THE STUDY ABOUT?

The number of patients with papillary thyroid cancer is rapidly increasing. About half of the new cases are small papillary cancers <1 cm in size, also known as papillary microcarcinomas. In some of these patients, the cancer may extend outside of the thyroid and spread into the lymph nodes. Fortunately, papillary thyroid cancer has a good prognosis, even for those with cancer spreading outside the thyroid in the lymph nodes. While thyroid ultrasound is very useful in detecting the spread of thyroid cancer to the lymph nodes, it can not detect the spread of the cancer outside of the thyroid in all patients. A new way of examining patients with thyroid cancer is the Positron-Emissions-Tomography (PET) scan. Some reports suggest that PET scans can detect the spread of the thyroid cancer outside the thyroid and identify the abnormal lymph nodes in the neck that may be missed by ultrasound. This study examines the usefulness of PET scans to identify spread of cancer outside the thyroid in patients with papillary microcarcinomas.

THE FULL ARTICLE TITLE:

Yun M et al; Visually discernible [18F]fluorodeoxyglucose uptake in papillary thyroid microcarcinoma: a potential new risk factor. *J Clin Endocrinol Metab* 2010;95:3182-8.

WHAT WAS THE AIM OF THE STUDY?

The aim of the study was to examine the usefulness of PET-scan to detect spread of cancer outside the thyroid in the neck in patients with papillary microcarcinomas.

WHO WAS STUDIED?

A total of 2311 patients were diagnosed with papillary microcarcinoma after a total thyroidectomy and central lymph node dissection from 2005–2008 in Seoul, Korea. A total of 145 of these patients had PET scans performed before their thyroidectomy and 87 of these patients were analyzed for this study.

HOW WAS THE STUDY DONE?

Patient records were reviewed for age, sex, size of cancer, surgical treatment and pathology. PET scans were analyzed

and the amount of activity taken up by the cancer in the thyroid and by the lymph nodes were measured by a nuclear medicine specialist.

WHAT WERE THE RESULTS OF THE STUDY?

A total of 46 out of 87 patients (53%) were found to have increased uptake on the PET scan (PET-scan positive) while the remaining patients showed no uptake (PET-scan negative). Spread of cancer outside of the thyroid was present in 32/46 (70%) in the PET-scan positive group as compared to 12/41 (29%) in the PET-scan negative group. Spread of the cancer to the central lymph nodes occurred in 27 patients (31%) in the PET-scan positive. A total of 19 of 46 (41%) patients in the PET-scan positive group had spread of cancer to the lymph nodes as compared with 8 of 41 (20%) in the PET-scan negative group.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

A recent study has classified microcarcinomas into a low risk group for cancer spreading out of the thyroid and a very low risk group with cancer confined to thyroid gland. They suggest that the very low risk group may require only surgery without additional radioactive iodine. The present study shows that PET scanning can help to distinguish between these two groups.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In patients with papillary microcarcinoma with a positive PET-scan, the cancer is more likely to spread outside the thyroid and to the lymph nodes in the neck than in PET-scan negative patients. This study suggests that PET scans performed before thyroid surgery may help identify the patients that require either more aggressive or less aggressive treatment.

— 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 & DEFINITIONS

Papillary thyroid cancer — the most common type of thyroid cancer.

Papillary microcarcinoma — a papillary thyroid cancer smaller than 1 cm in diameter.

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.

Thyroid Ultrasound — a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure

of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

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

Positron-Emission-Tomography (PET) scans — a nuclear medicine imaging test that uses a small amount of radiolabeled glucose to identify cancer. Since cancer cells are more active than normal cells, the cancer cells take up more of the radiolabeled glucose and show up on the PET scan. PET scans are frequently combined with CT scans to accurately identify where the cancer is located.