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THYROID CANCER

Imaging in thyroid cancer patients with spread of the cancer outside of the neck

BACKGROUND

The vast majority of patients diagnosed with thyroid cancer do very well. Most are cured of their cancer through a combination of surgery and radioactive iodine, which is taken up by the cancer to destroy it. While overall death from thyroid cancer is rare, the prognosis of thyroid cancer patients with spread of the cancer outside of the neck is less favorable. This is especially true for patients over the age of 45 or if the cancer does not take up radioactive iodine. FDG-PET scans use a small amount of radioactive glucose (FDG) to identify cancer and have been used to predict prognosis in other cancers. This study examined whether FDG-PET scans can be used as a prognostic factor in thyroid cancer patients with spread of the cancer outside of the neck.

THE FULL ARTICLE TITLE:

Deandreis et al. Tumor necrosis and absence of I-131 uptake predict progression of metastatic thyroid cancer. Endocr Relat Cancer 2011;18:159-169.

SUMMARY OF THE STUDY

In this study the effect of different prognostic factors were examined in 80 thyroid cancer patients over the age of 45 with spread of the cancer outside of the neck who were followed for 4 years. All patients had a total thyroidectomy and radioactive iodine treatment and all patients showing radioactive iodine uptake in the cancer were given additional radioactive iodine treatments every 6-12 months. Most patients (80%) had an FDG-PET scan 1 year after the diagnosis of spread of the cancer outside of the neck and the rest about 2-10 years later. A total of 4 patients were free of cancer after 3 years of treatments; all of those had cancers that took up I-131 but not FDG. All patients without FDG-uptake in the cancer were alive after 2 years follow-up, whereas only 60% of patients with FDG-uptake were still alive in the same time. All of the patients who died (14) had FDG-uptake in their cancer.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

While the spread of thyroid cancer outside of the neck is an unfavorable prognosis, some patients still do well for a long period of time. FDG-PET scans can be used to identify those patients who don't do well. In thyroid cancer patients with distant metastasis, the absence of radioactive uptake and the presence of FDG-uptake are associated with unfavorable outcome. These patients can be selected for more aggressive treatment or new experimental therapies.

— Jamshid Farahiti, MD

ATA THYROID BROCHURE LINKS

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

Radioactive Iodine Therapy: http://thyroid.org/patients/patient_brochures/radioactive.html

ABBREVIATIONS & DEFINITIONS

Total thyroidectomy — surgery to remove the entire 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).

Positron-Emission-Tomography (PET) scans — a nuclear medicine imaging test that uses a small amount of radiolabeled glucose (FDG) 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.