PET Imaging in Thyroid Cancer

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Positron Emission Tomography in Thyroid Cancer

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Positron Emission Tomography (PET) imaging is an important advance in the diagnostic imaging of common human tumors, and PET can be very useful for imaging thyroid cancer, as well. Between 11/95 and 4/02, we have studied 442 patients with thyroid cancer using PET-FDG,for a total of 970 scans. This experience has taught us that PET is best used selectively, as part of a management plan for individual patients, taking into account the patient's clinical state. We do not recommend PET for the low-risk patient with a small tumor that is totally confined to the thyroid gland. Instead, PET-FDG scanning is most useful for the "high risk" tumors, ie. more biologically aggressive and metastatic tumors. In addition to diagnostic utility, that is identifying sites of disease which are negative on Iodine-131 scanning, there is strong biologic information that can be derived from the PET measurement of glucose metabolism that is contained in the standardized uptake measurement or SUV of the tumor. Patients who take up FDG well, are not likely to respond to radioactive iodine. Also, the PET-FDG SUV is a strong predictor of an adverse prognosis.. The higher the SUV, the worse the overall prognosis. In addition, we have begun to explore the use of Iodine-124, a positron emitting form of radioiodine, for the purpose of determining lesion specific dosimetry. Finally, we have found that the combination of PET /CT scanning is especially valuable in thyroid cancer because of the ability of the combination imaging to better reference anatomic information regarding the positive PET scan.

References:

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