

PET News

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PET and Lymphoma

In July 2002, Medicare approved reimbursement for FDG PET imaging in lymphoma for staging and restaging. In a recent review comparing conventional imaging and PET for this purpose, PET was more sensitive than CT in the majority of cases and had specificity equal to CT in both Hodgkin's Disease (HD) and non-Hodgkin's Lymphoma (NHL).⁽¹⁾

In general, lymphoma is very FDG avid. Higher-grade tumors tend to have higher FDG uptake and higher detection rate. However, even the lower grade tumors are usually FDG avid. The advantages of PET over CT include whole body imaging and better assessment of bone marrow involvement. In the past, staging and restaging was commonly performed with radioactive gallium. Compared to PET however, gallium has less spatial resolution, less target to background activity, and represents greater radiation to the patient, even when compared to combined PET/CT.^(2,3,4)

In addition to staging and restaging, FDG PET has been found useful in predicting response to therapy. Studies have demonstrated that following the first round of chemotherapy, absent or reduced FDG accumulation is highly predictive of overall good response to therapy.

A change of therapy may be warranted in patients who continue to demonstrate FDG accumulation.⁽²⁾

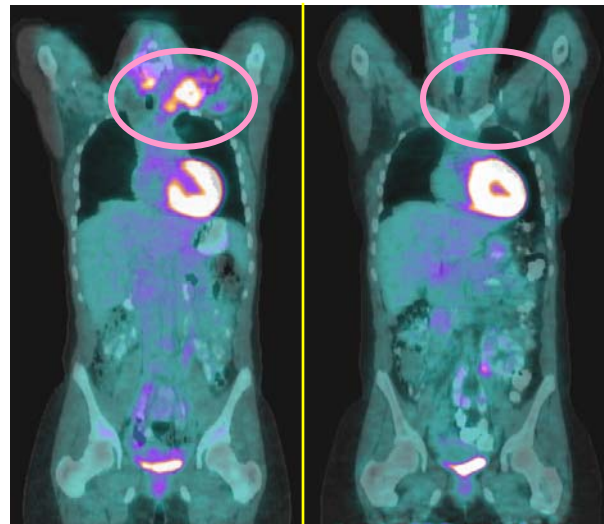


Fig. 1: 14 y/o female with biopsy proven Hodgkin's Lymphoma: 1) initial scan, 2) 2 months later after successful chemo treatments

There are shortcomings to FDG PET. Like gallium, FDG is not tumor specific and inflammatory or infectious lesions can result in false positive scans. PET resolution is in the range of 5-8 mm, so microscopic disease can be missed. In addition, there is nonspecific FDG accumulation in bowel, which makes evaluation of the abdomen more difficult than the thorax.^(1,2) However, use of combination PET/CT is very helpful in this regard.

Present recommendations include FDG PET at diagnosis of lymphoma and after completion of the first course of treatment to determine

treatment response. Further use of FDG PET in surveillance and following radiation and radioimmunotherapy are being evaluated. ⁽²⁾

References:

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Bone Marrow Stimulants and FDG PET

Have you wondered why we ask whether your patients have taken Neupogen (G granulocyte stimulating factor (GCSF) or Procrit (erythropoiten) in the last several weeks before scheduling a PET scan? These drugs, by virtue of stimulating the bone marrow, can significantly alter the appearance of the patient's PET scan. FDG uptake in the bone marrow may be so intense as to obscure possible bone lesions in the spine (Figure 1). In addition, the amount



Fig. 1

of FDG available to be concentrated in extra osseous sites may be so reduced as to give the appearance of improvement in these lesions (Figure 2). While the exact time course of this

effect is not known at present, the present recommendation is to wait at least a week to scan after the last dose of medication.

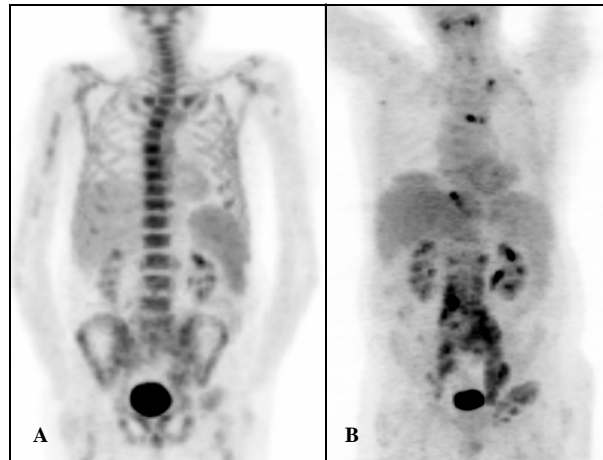


Figure 2: A) On Procrit, lesions difficult to detect. B) Off Procrit over 2 weeks, lesions clearly seen.

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