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Clinical Utility of F-18-FDG Coincidence Detection PET in Imaging of Malignant Lymphoma

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Purpose: We investigated the usefulness of F-18 FDG CoDe-PET in staging, post-treatment evaluation and follow-up assessment of patients with malignant lymphomas. **Materials and Methods:** Sixty-seven patients with histologically proven malignant lymphomas (9 Hodgkins ds and 58 non-Hodgkins lymphoma) underwent CoDe-PET using F-18-FDG. CoDe-PET was performed utilizing a dual-head gamma camera equipped with coincidence detection circuitry and 5/8 inch NaI(Tl) crystal. Of the total 113 CoDe-PET studies, 38 were performed for staging, 45 for post-treatment and 30 for follow-up evaluation of recurrence. A whole trunk from cervical to inguinal regions or selected region were scanned in supine position. There was no attenuation correction made and image reconstruction was done using filtered backprojection instead of iterative reconstruction. CoDe-PET results were compared with corresponding CT/MR images, tissue biopsy or clinical follow-up. **Results:** For staging, a total of 60 sites were positive on CoDe-PET and CT/MRI. CoDe-PET detected 56 sites (93%) and CT/MRI 53 sites (88%). CoDe-PET detected 7 more lymphomatous lesions and missed 4 lesions. For post-treatment evaluation, CoDe-PET showed PPV of 89% and NPV of 67%, but the validated cases were only 15. In regard to follow-up for recurrence, CoDe-PET had PPV of 67% and NPV of 92%. False positives were noted in the head and neck region as a result of underlying inflammatory changes. **Conclusion:** In staging, FDG CoDe-PET alone without attenuation correction is not sensitive enough to be used as an independent imaging modality especially for small lesions in the abdomen. However, it appears to be an accurate method in the assessment of residual disease and follow-up of patients with malignant lymphomas.

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Investigations of Breast Masses with Technetium-99m Labeled Anti-Mucin Antibody And Technetium-99m-MIBI

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Purpose: The aim of this study was to evaluate the efficacy of radioimmunoimaging (RII) with ^{99m}Tc-anti-mucin McAb in detecting breast cancer and to compare the accuracy of ^{99m}Tc-MIBI in detecting primary breast cancer and lymph node metastasis. **Methods:** 17 patients (included 2 postoperation patients) with suspected breast lesions with/without axillary lymph node metastasis were included in this study. All patients received intravenous injection of 740-925 MBq of ^{99m}Tc-McAb. 9 of 17 patients received 740 MBq of ^{99m}Tc-MIBI injection at the interval of 2-3 days after McAb injection for the comparison study of McAb and MIBI. At 2 4, 5 and 24 hrs postinjection of McAb, or at 5 min and 1.5-2 hrs postinjection of MIBI, planar lateral and anterior views with 1000 k to 2000 k counts were obtained. **Results:** After operation, we found 6 of 17 patients with benign disease, others with malignant cancer. RII showed positive images in 8 of 9 primary cancer patients, with sensitivity of 88.9%. In the malignant group, 6 of 11 had axillary lymph node metastasis. Localisation of McAb in the axillary lymph node metastasis was observed in 5 of them. The sensitivity was 83.33%. 6 patients with benign breast lesions and 1 patient with post-operative breast cancer without recurrence showed negative findings (TN) on McAb scan. For the comparison study of 9 patients, all of 5 primary breast lesions and 2 axillary lymph node metastatsis in these 5 patients were seen by both imaging procedures. MIBI gave false positive image of one reactive proliferation lesion in a patient with ductal cancer. 4 benign lesions on McAb and 3 of these 4 lesions on MIBI images were negative. One false positive lesion was seen on 5 min MIBI image. **Conclusion:** Both McAb and MIBI were sensitive in breast cancer imaging, McAb was more specific in detecting primary breast cancer and axillary lymph node metastasis.