IS-1 IN VIVO EVALUATION OF P-GLYCOPROTEIN BY Tc-99m-MIBI OR I-125-LABELED MONOCLONAL ANTIBODY.

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The aim of this study is to perform in vivo quantification of P-glycoprotein(P-gp) in a multidrug resistance(MDR) xenografts nude mice model by Tc-99m-MIBI or I-125-labeled monoclonal antibody, MRK-16, which targets an external epitope of P-gp. I-125-MRK was accumulated in the MDR-tumor, while Tc-99m-MIBI uptake there was quite small. The injection of verapamil recovered Tc-99m-MIBI uptake in the tumor, whereas it did not cause any effect on the I-125-MRK localization. Our findings suggest that Tc-99m-MIBI scintigraphy is of promise to evaluate the presence and the function of P-gp.

IS-2 THE DECLINING SENSITIVITY OF Tc99M MIBI IMAGING FOR DETECTING AXILLARY METASTASES FROM BREAST CANCER.

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Pre-operative Tc-99m-setaMIBI imaging of breast and axillae was performed before either open breast biopsy (with axillary dissection if positive) (N=36) or biopsy of an axillary mass (N=3). Anterior and prone lateral (using a special foam cushion) images were acquired 15 min post injection (30mCi), and interpreted by 2 blinded observers. A total of 21 breast biopsies were positive, and 14 patients had axillary metastases. The sensitivity, specificity, positive and negative predictive accuracy of sestaMIBI imaging was 86% (18/21), 47% (7/15), 69% (18/26) and 70% (7/10) for detecting breast cancer, and respectfully 50% (7/14), 96% (24/25), 88% (7/8) and 77% (24/31) for detecting axillary metastases. In conclusion, the sensitivity of Tc99m-sestaMIBI imaging for the detection of that axillary metastases in our study was significantly lower than that reported in earlier studies using an identical imaging protocol.

IS-3 POSITIVE/NEGATIVE PREDICTIVE VALUE OF Tc-99m MIBI IN DETECTING THYROID CANCER METASTASES.

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Use of Tc-99m MIBI in detecting thyroid cancer metastases is generally supplementary to other scintigraphic modes. In our present study with 68 thyroidectomized thyroid cancer patients we tried to evaluate the positive predictive value(PPV) and negative predictive value(NPV)of this agent. Presence or absence of thyroid cancer was proved by different other diagnostic modes. All scans were read for head-neck, chest, abdominopelvic region & extemities in addition to obvious positive sites. For all scan sites PPV was 86.9% and NPV was 95.9%. PPV & NPV calculated on regional basis also showed similar pattern. Considering its high specificity and sensitivity, Tc-99m MIBI can be proposed as a first line diagnostic agent for evaluating thyroid cancer patients.

IS-4 ACCURACY OF STANDARDIZED UPTAKE VALUE (SUV) MEASURED BY SIMULTANEOUS EMISSION AND TRANSMISSION SCANNING WITH FDG.

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The aim of this study is to evaluate the accuracy of standardized uptake value (SUV) measured by simultaneous emission (E) and transmission(T) scanning in cancer patient using FDG PET. The SUVs of 35 mass lesions and selected 34 normal tissues in 30 patients were derived. There were no significant difference and strong positive correlation ($r=0.99$, $P<0.01$) between SUVs derived from simultaneous E/T and those from conventional independent scan. And the studies using a cylindrical phantom with simultaneous E/T scan showed high reproducibility. In conclusion, the simultaneous E/T scanning with FDG in cancer patients is valid since the SUV of it is accurate and reproducible.

IS-5 Image Fusion System using PACS for FDG-PET

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Image fusion offers the potential to revolutionize medical imaging by combining multiple modalities for diagnostic and therapeutic purposes. The precise registration of volumetric images from multiple modalities can improve the diagnostic performance of medical imaging. However image database is essential requirement for clinical image fusion. This study represent and evaluate picture archiving and communication system (PACS) and its interaction with image fusion applications. A network connection has been developed between a medium-sized PACS and SET2400W workstation where it can produce image fusion by Advanced Visual System (AVS) software. CT, MRI and PET reconstructed data sets are transferred to PACS server daily. Series of image fusion of FDG-PET and CT or MRI were performed. Image registration and transferring time were analyzed. Result of the transferring time from PACS server to SET2400W workstation was comparable to the transferring time from CT, MRI and PET modality to PACS server, and image fusion experiment showed high accuracy in all direction. In conclusion PACS is playing an important role in maintaining and transferring image data sets to be used in image fusion.