were calculated using a minimum sum of squares algorithm. The goodness-of-fit was quantified by R^2. Akaike's information criterion (AIC) was applied and the models (shared and non-shared for the exponential function with a half-life of about an hour) were ranked according to the Akaike weights w_i to identify which model is supported strongest by the data. **Results:** R^2 was higher than 0.97 for all best models. For four out of five patients the model with shared parameters of the first exponential are ranked best. The data of one patient fit best to a model where only the half-life of the first exponential is shared. All best models are substantially supported (w_i=0.75-0.96) by the data. The ratio of the areas under the best fit model curves from time 0 to 4 h p.i. of Y-90 and In-111 was 1.02±0.03. **Conclusions:** The presented method offers an approach to intraindividually proof equality of blood serum biokinetics. It provides pivotal information for assessing surrogate nuclides in RIT. **Research Support:** DFG, KFO 120, GL 236/6-1

1624

SPECT imaging of transgenic stem cells and dendritic cells for gene delivery. A. M. Rad*, A. Iskander, M. R. Siadat, B. Janic, A. S. Arbab, H. Soltanian-Zadeh; Radiology, Henry Ford Health System, Detroit, Michigan. (335367)

Objectives: Gene therapy holds enormous therapeutic potential for breast cancer treatment. Very recently, stem/progenitor cells have been considered as delivery vehicles for transferring exogenous genes to the cancer cells. The purpose of this study was to determine whether endothelial progenitor (EPCs) and dendritic cells (DCs) can be used as gene delivery vehicles. In this study, we used EPCs and DCs to carry human sodium iodide symporter (hNIS) gene to the sites of implanted breast cancer in mouse model. Expression of hNIS was determined by Tc-99m pertechnetate (Tc-99m) scan. **Methods:** Three million human breast cancer (MDA-MB-231) cells in 50 µl of serum free media were subcutaneously implanted in the right flank of nude mice. EPCs were isolated from fresh human cord blood. Dendritic cells were differentiated from the cord blood CD34+ or CD14+ cells. Both, EPCs and DCs were genetically transformed to carry hNIS gene using adenoviral vectors. Genetically transformed and normal cells were administered intravenously in tumor bearing mice when tumors grew to 0.5 cm in sizes. Single photon emission computed tomography (SPECT) images were acquired 3 days after cell injection, with a custom built micro-SPECT (converted from a clinical PRISM 3000XP using multi-pinhole animal collimators from Bioscan Inc.) using Tc-99m. Expression of hNIS in accumulated cells was determined by staining with anti-hNIS antibody. **Results:** SPECT images from animals that received transfected cells showed significantly higher radioactivity in tumors as compared to the same images from animals that received non-transfected cells and to the background activity in the same animal. Presence of administered cells was also confirmed by the presence of hNIS positive cells. **Conclusions:** SPECT images showed accumulation of administered EPCs and DCs in implanted breast cancer, and expression of hNIS gene, respectively. Our study indicates that both EPCs and DCs can be used to deliver genes by systemic administration. This method can be used in the future development of gene therapy approaches for different cancer diseases. **Research Support:** A grant from DOD

1625

Role of FDG-PET/PET-CT in evaluation of adrenal lesions in patients with known malignancies. R. Kumar*[1], M. Chawla[1], S. Fanti[3], H. Zhuang[2], V. Ambrosini[3], A. Alavi[2]; 1. Nuclear Medicine, All India Institute of Medical Sciences, New Delhi, India; 2. Department of Radiology, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania; 3. Department of Nuclear Medicine, PET Unit, Policlinico S. Orsola-Malpighi, Bologna, Italy. (334987)

Objectives: To assess the usefulness of FDG-PET/PET-CT in characterizing adrenal lesion in patients with known malignancies. **Methods:** A total of 214 patients of known malignancies presented with 247 adrenal lesions (181 unilateral and 33 bilateral)detected on CT/MR imaging were included in this study. All patients underwent PET/PET-CT for staging or restaging. PET/PET-CT was interpreted as positive if the FDG uptake was equal to or greater than that of the liver. PET and PET-CT findings were correlated with the clinical follow-up and/or biopsy results whenever available. **Results:** PET/PET-CT findings were positive (uptake> or = liver) in 172 adrenal lesions. Of these, 169 were metastatic adrenal lesions. In the remaining 3 lesions, one was diagnosed as pheochromocytoma while the other 2 adrenal masses did not show any change in size on follow up. PET/PET-CT findings were negative(uptake < liver) in 75 adrenal lesions, of which 63 were benign. Among 12 false negative lesions on PET/PET-CT, one was a 2.1x2.4cm lesion with central haemorrhage, 4 were lesions ranging in size between 10mm to 20mm. In the remaining lesions adrenal mass size was unknown on CT/MR imaging. The sensitivity, specificity, positive predictive value, negative predictive value, false negative rate, false positive rate and accuracy of PET/PET-CT for detecting metastatic adrenal disease were 93%, 95%, 98%, 84%, 6%, 4%, and 93%, respectively. **Conclusions:** FDG-PET/PET-CT is an accurate technique for characterizing adrenal lesions detected on CT/MRI in patients with known malignancies.

PET/PET-CT evaluation

	Positive	Negative
Patients who underwent PET scan		
Male	36	32
Female	32	23
Total Patients	68	55
Total Lesions	85	64
Patients who underwent PET-CT		
Male	50	07
Female	30	04
Total Patients	80	11
Total Lesions	87	11

1626 YPC

Initial FDG uptake in patients with adenocarcinomas of the esophagogastric junction (AEG): Is it correlated to tumor localization and to patients' survival? M. Souvatzoglou*[1], K. Herrmann[1], K. Ott[2], F. Lordick[3], K. Becker[4], T. Schuster[5], J. Siewert[2], M. Schwaiger[1], B. Krause[1]; 1. Nuclear Medicine; 2. Surgery; 3. Internal Medicine III; 4. Pathology; 5. Medical Statistics, TU Munich, Munich, Germany. (334472)

Objectives: Comparison of F-18-FDG uptake in AEG according to their localization and evaluation of the initial uptake for prediction of patient survival. **Methods:** 154 patients (pts) with AEG I-III (T3 N0/+ M0; mean age 57 + 6.5 years) underwent whole body PET scan prior to neoadjuvant chemotherapy using an ECAT EXACT scanner. 72 pts were classified according to Siewert et al [Br.J.Surg 85: 1457-9] as AEG I, 52 pts as AEG II and 30 pts as AEG III. Scan protocol comprised a 20 min emission scan over the tumor 40 min after injection of approximately 370 MBq of F-18-FDG. For attenuation correction a Ge-68-transmission scan was performed. Mean standardized uptake values (SUV) in the tumor lesions were calculated by placing a circular ROI (diameter 1.5 cm) in the transversal slice with the maximum activity in the tumor. For assessment of prognostic significance of initial a Kaplan-Meier analysis was performed. **Results:** Across all groups the SUVmean in the tumor was 8.8 + 5.7. The SUVmean in AEG I was 8.5 + 4.5, in AEG II 8.4 + 5.2 and in AEG III 10.5 + 8.4. The difference in initial FDG-uptake depending on the localization was not significant (AEG I vs. AEG II p=0.97, AEG I vs. AEG III p=0.23 and AEG II vs. AEG III p=0.24). Across all groups the initial SUVmean in the tumor did not prove to be a prognostic factor for survival (p=0.34). Notably, separate analysis of the three different group's initial SUVmean was a significant prognostic factor only in patients with AEG II (p=0.028). Cox-Regression analysis revealed that the survival of the patients across the three different groups did not differ significantly. However patients with AEG III showed a tendency for shorter survival (p=0.11). **Conclusions:** There is no significant difference in the initial FDG-uptake of adenocarcinomas of the esophagogastric junction (I-III) according to their localization. Overall, the initial SUV uptake did not prove to be a prognostic factor for survival. Patients with AEG III show a tendency for shorter survival.