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Journal Menu

- Abstracting and Indexing
- Aims and Scope
- Article Processing Charges
- Articles in Press
- Author Guidelines
- Bibliographic Information
- Contact Information
- Editorial Board
- Editorial Workflow
- Reviewers Acknowledgment
- Subscription Information

- Open Special Issues
- Published Special Issues
- Special Issue Guidelines

Call for Proposals for
Special Issues

Research Article

The Advantage of PET and CT Integration in Examination of Lung Tumors

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Abstract
Full-Text PDF
Linked References
How to Cite this Article
Complete Special Issue

Abstract

Purpose. To evaluate the diagnosis value of integrated positron emission tomography and computed tomography (PET/CT) with lung masses, this study emphasized the correlation between tumor size and maximum standardized uptake value (SUVmax) in selected regions of interest (ROI) of lung masses. *Material and Methods.* A retrospective analysis was performed on 85 patients with solid pulmonary lesions, all verified by pathology. The morphology, edge (speculated margins and lobule), size, density of pulmonary masses, and on-chest CT images were reviewed. The SUVmax in ROI of pulmonary masses was calculated. *Results.* Among the 85 patients with lung masses, 59 patients presented with pulmonary malignant neoplasm and 26 patients with benign lesions. The sensitivity, specificity, and accuracy were 89.8%, 61.5%, 81.2%, respectively, for PET measurement only, 88.1%, 65.4%, 81.2% for CT only, and 96.6%, 80.8%, 91.8% for PET/CT. The size of pulmonary malignant neoplasm in the 59 patients was apparently correlated with the ROI's SUVmax (r=0.617, P<.001). However, the size of pulmonary benign mass in the 26 patients was not correlated with the SUVmax. *Conclusion.* PET/CT is of greater value in characterization of lung masses than PET and CT performed separately. The examination of lung tumor can be further specified by the correlation between the size of pulmonary malignant neoplasm and the ROI's SUVmax.