Solitary Lung Nodule: Role of PET-CT in Management

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I do not have any relevant financial relationships with any commercial interests
Growth

Two Volume Doublings

4-mm
5-mm
6.25-mm
16-mm
20-mm
25-mm
Growth

FDG-PET False Positive

• Meta-analysis of 40 studies, 1474 nodules
• SUV > 2.5
• Most nodules > 1-cm
• Sensitivity 96.8%, specificity 78%
• 22% false positive

FDG-PET False Positive
FDG-PET False Negative

- 136 pts with lung nodules
- Nodules ≤ 3-cm
- Solid nodules sensitivity 90%, specificity 71%
- < 1-cm 8/20 (40%) false negative
- GG0 9/15 false negative

Adenocarcinoma
PET-CT/GGO
PET-CT/GGO
SUV = 10.8
SUV = 13.7 (27%)
Solitary Pulmonary Nodule Clinical Prediction Model and PET

- Patient age
- Smoking history
- Time since cessation of smoking
- Nodule size mean 15-mm

Solitary Pulmonary Nodule
Clinical Prediction Model and PET

- Pre-test probability low (20%)
- PET negative
- Post-test probability < 2%

Follow-up

Hemorrhagic Cyst
Solitary Pulmonary Nodule
Clinical Prediction Model and PET

- Pre-test probability high (65%)
- PET negative
- Post-test probability >10%

Needle biopsy or VATS

Adenocarcinoma

SUV 1.4
PET/Screen-Detected Nodules

- 1520 patients
- 22/62 NSCLC evaluated by PET
- Nodules growing on CT
- Average size 10-mm (range, 6.5-14-mm)
- 7/22 false negative

PET-CT Nodule Evaluation

- Role of PET-CT limited by both false negative and positive FDG uptake
- Appropriate use of PET-CT can improve patient management