

## Fluorine-18-fluorodeoxyglucose positron emission tomography for assessment of patients with unresectable recurrent or metastatic lung cancers after CT-guided radiofrequency ablation: Preliminary results

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**Objectives:** We compared the diagnostic value of fluorine-18-fluorodeoxyglucose positron emission tomography (FDG-PET) with that of computed tomography (CT) following radiofrequency ablation (RFA) of inoperable recurrent or metastatic cancers in the lung. **Methods:** Twelve patients (9 males and 3 females; 5 had recurrent lung cancer and the other 7 had metastatic nodules from a variety of primary cancers) were treated by RFA for 17 pulmonary nodules. FDG-PET was performed before and 2 months after RFA, and the mean standardized uptake value (SUV) was calculated. The response evaluation was based on the percent reduction relative to the baseline and the absolute values of SUV on FDG-PET performed at 2 months after RFA. We compared the response evaluations made based on findings of FDG-PET and CT at 2 and  $\geq 6$  months (mean 10.2) after RFA. **Results:** The percent reduction in uptake at 2 months was significantly lower in nodules considered progressive ( $69.6 \pm 18.6\%$ ) than nonprogressive disease ( $38.7 \pm 12.5\%$ ;  $p < 0.01$ ) based on CT findings at  $\geq 6$  months after RFA. The absolute SUV at 2 months was significantly higher in nodules considered progressive ( $2.61 \pm 0.75$ ) than nonprogressive disease ( $1.05 \pm 0.67$ ;  $p < 0.01$ ) based on CT findings at  $\geq 6$  months post-RFA. **Conclusion:** Although our pilot study comprised few cases of various histopathological types of cancers in the lung, the results suggest that FDG-PET could predict regrowth on subsequent follow-up CT. Regrowth could be diagnosed earlier by FDG-PET than by CT, and nodules with residual uptake and with  $< 60\%$  reduction of uptake relative to baseline on FDG-PET at 2 months after ablation might require additional therapy.

**Key words:** lung cancer, radiofrequency ablation, FDG-PET