and tumors of low invasiveness. However, the degree to which low or moderate metabolism represents an early malignancy versus an alternate granulomatous or infectious process will depend on a patient's pretest probability of having lung cancer and the endemicity of the region.⁷

Both of these issues could be addressed by replicating the study in other regions or as a multinational study. Given the preliminary findings of JCOG-0802 and the increasing recognition of tumor spread through air spaces as a risk factor for recurrence,⁸ reporting tumor spread through air spaces in any future study will be crucial. Well-designed prospective studies capturing these data could provide strong guidance for surgeons in need of criteria for determining appropriateness of sublobar approaches for their patients.

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Commentary: Maximum standardized uptake value is no crystal ball for candidate selection for sublobar resection: The future is cloudy (ground-glass)

Jules Lin, MD

In this issue, Muraoka and colleagues¹ performed a retrospective study of 926 patients with clinical stage IA lung cancer. While JCOG 0201 reported a correlation between a consolidation/tumor (C/T) ratio <0.25 and noninvasive

The future is cloudy (ground-glass).

CENTRAL MESSAGE

This study suggests that maximum standardized uptake value does not improve selection for sublobar resection. However, we await results of randomized trials to further define the indications.

lung adenocarcinoma,² the authors evaluated whether adding maximum standardized uptake value (SUVmax) improved the ability to identify patients with no lymphatic invasion, vascular invasion, or lymph node metastasis. They

From the Section of Thoracic Surgery, Department of Surgery, University of Michigan Medical Center, Ann Arbor, Mich.

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Address for reprints: Jules Lin, MD, Section of Thoracic Surgery, 1500 E Medical Center Dr, 2120TC/5344, Ann Arbor, MI 48109-5344 (E-mail: juleslin@umich.edu).

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found that SUVmax did not improve patient selection for sublobar resection.¹ With increasing interest in sublobar resection, this analysis of preoperative imaging characteristics using data-mining techniques is timely and will help to further define criteria for segmentectomy.

While the authors did not find a benefit to adding SUVmax to C/T ratio, positron emission tomography (PET) findings may be useful in different subgroups. The resolution for the detection of fluorodeoxyglucose uptake on PET is limited in lung nodules less than 1 cm in size. It is possible that the discriminatory ability for SUVmax would be improved when the cohort is limited to tumors ≥ 1 cm in size. However, the authors did not find a difference after additional analysis, and the majority of patient in the current study (97.7%) had tumors ≥ 1 cm in size.

PET results may be more useful in the diagnosis of mediastinal lymph node involvement than computed tomography of the chest. Sakairi and colleagues³ found that an SUVmax < 1.9 was significantly associated with pN0 versus pN1/N2 in the mixed ground-glass group but not the solid tumor group. While SUVmax was not associated with nodal disease in the high-risk solid or low-risk pure ground-glass groups in the current study, SUVmax was negatively associated with lymph node metastases in patients with part-solid nodules. Although the numbers were small, the results are consistent with those of Sakairi and colleagues.³

SUVmax may be more useful in the 18% of tumors that were nonadenocarcinomas, since 98.2% were solid nodules with a C/T ratio of 1. The AUC for SUVmax (0.700) was better than the AUC for C/T ratio (0.502). SUVmax may

be useful in the subset of solid tumors to discriminate which tumors are truly invasive.

Other PET parameters besides SUVmax may also be useful in selecting patients for sublobar resection. Ouyang and colleagues⁴ found that total lesion glycolysis, the product of the mean SUV and the metabolic tumor volume, was significantly associated with occult lymph node metastases in clinically node-negative (cN0) lung adenocarcinoma and combines volumetric and metabolic information.

The current study suggests that adding maximum standardized uptake value to C/T ratio is no crystal ball for candidate selection for sublobar resection. While the future is cloudy (ground-glass), we must await the long-term results of randomized trials comparing sublobar resection and lobectomy (CALGB 140503 and JCOG 0802) to further define the indications for sublobar resection.

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