gies in the workup of a solitary radiographic lung lesion failed to mention any other options available to the diagnostian. Three of the four strategies mentioned (sputum cytology, image directed fine-needle aspiration, bronchoscopic examination, and open biopsy) are invasive procedures. The model the authors proposed does not include the possibility of procedural complications that may (positively) affect the overall favorability of a sputum cytology analysis.

The approach to the problem presented must involve many specialties, such as a pulmonologist, a radiologist, a thoracic surgeon, and a pathologist. Whereas a plain tomographic film finding of a solitary lung lesion can be given an accurate diagnosis (benign or malignant) in as many as 67% of cases, the diagnostic dilemma mentioned only applies to the remaining 33%. Given the baseline case of a mass of less than 3.0 cm in diameter, we would try to reduce the diagnostic uncertainty further with the aid of added radiographic imaging, specifically thin-section CT aided by a reference phantom. The technique, pioneered by Zerhouni et al.2 where the tomographic attenuation of the lesion is compared with the standardized reference, has been shown to increase the accuracy of the radiographic diagnosis to nearly 77%, with a specificity of 97%.3 The actual additional cost incurred is negligible. The procedure is not commonly done at all centers, however.

In addition, there are other newer modalities that may be used before one resorts to the invasive procedures mentioned. These include CT (iodinated) contrast enhancement of nodules (specificity, 76.9% and sensitivity, 100% for pulmonary nodules 6 to 40 mm in diameter),4 digital radiography, dual-energy digital radiography, and FDG-PET scanning (specificity, 100%, and sensitivity, 89% for nodules 2 cm or more in size).5 Each of these radiographic adjuncts can select the patients that need more definitive analysis, significantly improving the yields of these tests and improving also the overall cost-effectiveness of the workup.

Fred Fefer, MD
Department of Internal Medicine
Bernard Suster, MD
Department of Radiology
St. Lukes Hospital
New York

REFERENCES

To the Editor:

Drs. Fefer and Suster raise several important issues about the evaluation of solitary lung lesions. We believe that it is important to emphasize that the perspective that we chose was that of a clinician attempting to find out whether a lung lesion was malignant or not. In other words, the diagnosis is pursued until one gets a definite answer. The imaging modalities that Drs. Fefer and Suster cite improve the pretest probability of disease, possibly close to 1. However, it has been our experience that, while imaging may increase or decrease a clinician’s level of suspicion, the results of such procedures are not viewed as definitive and that all lesions are worked up to the extent possible.

The newer imaging techniques cannot reduce the cost of workup unless their results can be accepted as definitive. Whether or not these techniques had been used, the diagnostic options in our analysis would still be pursued, albeit with a higher prevalence of disease. We did indirectly model the use of such modalities in our sensitivity analysis by varying the prevalence of disease over a wide range (1 to 100%).

Fefer and Suster correctly noted that we did not fully model complications of each of the diagnostic procedures. We noted that this was a limitation of our study. We did, however, indirectly model the costs of treating complications in our sensitivity analysis by varying the cost of each test over a wide range. We also noted that our analysis did not evaluate the problem of lung lesions from a screening perspective, which further limited the broad applicability of our study.

We chose to model a small segment of the population of patients with pulmonary lesions from one perspective. We found that only at a high prevalence of disease does sputum cytology become cost effective. From the particular perspective that we modeled, one should go directly to open biopsy for surgical candidates over 30, to bronchoscopy for younger patients, or to CT directed fine-needle aspiration for those who are not operative candidates.

Becki Goldberg-Kahn, MD
James C. Healy, MD
John W. Bishop, MD
Department of Pathology
Creighton University
Omaha, Nebraska

A Sedation Protocol to Prevent Self-Exubtation

To the Editor:

We read with interest the article about self-extubations published by Atkins et al (November 1997)1 in CHEST. In our medical ICU, self-extubation was also a problem associated with potential serious morbidity and mortality. As a quality improvement project, we developed a sedation protocol with lorazepam (Ativan) as a continuous drip, since agitation appeared to be the major factor contributing to these self-extubations. The physician institutes the sedation protocol in the order sheet and sets a target Ramsay score, and the nurse titrates the lorazepam drip to aim for this specific level of sedation. Using this sedation protocol, we were able to decrease the self-extubation rate from as high as 25% to a present level of under 10%. This sedation protocol has now been adopted by all the other adult ICUs at Saint Vincent's Hospital.

Ira J. Wagner, MD
Department of Medicine,
Section of Critical Care Medicine
Saint Vincent’s Hospital and Medical Center
New York

REFERENCE