

2. Median Acute Physiology and Chronic Health Evaluation (APACHE IV) scores were 83 in the IV vasopressor-only group and 77.5 in the IV vasopressor with midodrine group ($P = .55$) (Table 2).

3. Regarding the 18 patients discharged on midodrine, disposition and dosing were varied. Seven patients were discharged to hospice care, and one patient was transferred to another facility. Four patients were discharged home taking midodrine during hemodialysis only, which is a common safe practice.³ Six patients were discharged to rehabilitation centers, and the highest dosage at discharge was 10 mg tid. As these patients were discharged after transfer to the primary team from the ICU, we cannot comment on the treatment or discharge decisions regarding midodrine use. We also cannot comment on the outpatient duration, down titration, or outcomes of midodrine therapy in these patients. For a hospital inpatient, we recommend decremental titration of midodrine by 5 to 10 mg per dose on a daily basis until discontinuation while monitoring for hypotension or symptoms. If hypotension occurs, the prior stable midodrine dose should be reinstated. We do not recommend the routine use of daily midodrine for outpatients during recovery from septic shock.

We appreciate the opportunity to further explain our findings in what we believe to be a useful tool to improve ICU resource allocation.

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Endoscopic Ultrasound Training for Pulmonologists



To the Editor:

We read with great interest in a recent issue of *CHEST* (May 2015) the study by Oki and colleagues¹ who compared mediastinal nodal sampling by endoscopic ultrasound (EUS; transesophageal) with endobronchial ultrasound (EBUS; transbronchial) using the same endoscope. Sampling by EUS resulted in similar diagnostic yield but was associated with fewer doses of anesthetics and sedatives, less oxygen desaturation and cough, a shortened procedure time, and higher operator satisfaction.¹ We congratulate Oki and colleagues as they have proven what each EBUS/EUS endoscopist already knew from clinical practice but was never systematically investigated.

Not mentioned in the article is the fact that patients with lung cancer often also have COPD with a compromised pulmonary function. It is obvious that an esophageal approach is less troublesome for those patients.

However, it needs to be stressed that the EUS approach is excellent for diagnostic purposes but not for complete mediastinal staging for which the combined EBUS and endoscopic ultrasound using the EBUS scope approach is advised. As recently discussed in *CHEST*,² the question now is not whether to implement EUS (B) in pulmonary practice but how to organize training and implementation. The challenge to mastering EUS (B) is not the actual sampling, but learning the mediastinal anatomy from an esophageal perspective and relating the various lymph nodes to the vascular structures and the lymph node map. We demonstrated that pulmonologists can learn EUS and achieve similar results as experts using a dedicated implementation strategy.³ In another study, assessing learning curves for mediastinal EUS, we found that pulmonologists with knowledge of lung cancer staging and experience in bronchoscopy quickly improved their performance in EUS-guided fine-needle aspiration. However, acquisition of skill varied considerably between individuals and 20 procedures were not enough to ensure consistent and competent performance.⁴ To facilitate the learning of mediastinal EUS, we developed an EUS assessment tool and demonstrated that competency in mediastinal staging of non-small-cell lung carcinoma could be assessed in a reliable and valid way.⁵ Measuring and defining competency and training requirements could improve EUS quality and benefit patient care.

The results of Oki and colleagues¹ underline that the pulmonary community needs to adopt mediastinal EUS. This should be taken up by pulmonologists—not gastroenterologists—and EBUS training should include EUS (B) at least for nodal stations 4L and 7. The evidence and the tools are there: it is time for EUS (B) implementation to ensure that more patients will benefit from this elegant diagnostic technique.

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Response

To the Editor:

We thank Drs Annema and Konge for their enlightening comments regarding our study¹ comparing the tolerance, efficacy, and safety of endobronchial ultrasound (EBUS)-guided transbronchial needle aspiration (EBUS-TBNA) with transesophageal endoscopic ultrasound (EUS)-guided fine-needle aspiration (EUS-FNA) with an EBUS scope for the diagnosis of mediastinal lesions.



In the study, we demonstrated that EUS-FNA with an EBUS scope had the advantage of comparable tolerance with fewer doses of anesthetics and sedatives, shorter procedure time, less oxygen desaturation, less coughing, and greater operator satisfaction compared with EBUS-TBNA. As Drs Annema and Konge commented, this procedure can be performed for patients with severe COPD for whom the transbronchial approach for the diagnosis of lung cancer seems impossible.² This procedure plays an important role not only for initial diagnosis, as we demonstrated, but also for mediastinal staging, as a single or a combined procedure with EBUS-TBNA.³

Traditionally, EUS-FNA has been performed by gastroenterologists, but the performance of the procedure by pulmonologists, who make the management decision for patients with mediastinal lesions, is quite reasonable in terms of feedback on the EUS-FNA results.⁴ In addition, pulmonologists are more familiar with the mediastinal lymph node mapping and staging than gastroenterologists.⁴ Although EUS-FNA with an EUS scope has the advantage of accessibility, especially to left adrenal glands or subaortic lymph nodes, and endoscopic/ultrasonographic visibility, EUS-FNA with an EBUS scope seems to be much more practical for pulmonologists in terms of equipment preparation and simple handling. The important thing for popularizing and widely implementing the useful procedure is that pulmonologists become aware of its clinical utility. Thus, we must continue efforts to inform pulmonologists as to the usefulness of this procedure.

To ensure the safety and accuracy of the procedure, training is essential. In the esophagus, there are no endoscopic landmarks like the carina in the airway, so we must confirm the exact location only by the ultrasound image. As Drs Annema and Konge commented, the challenge to mastering the procedure for pulmonologists, who are familiar with EBUS-TBNA, may be learning the mediastinal anatomy on the ultrasound image through the esophagus rather than acquiring the needle aspiration technique. A standard training protocol (including structured curriculum, simulation, and the assessment of technical skills or competency), which attaches importance to the ultrasound image of mediastinal structures through the esophagus, is needed. Until the way of training is established, pulmonologists should acquire substantial skills in EBUS-TBNA and training from an expert gastroenterologist prior to