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Learning Curve for Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration

To the Editor:

The prospective study by Fernández-Villar et al in a recent issue of *CHEST* (January 2012) on the learning curve for endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) biopsy raises some interesting points on the proposed number of procedures to produce optimal results. They demonstrated improving results up to 120 EBUS-TBNA procedures. Interestingly, no specific numbers have been recommended in UK guideline statements from the British Thoracic Society, possibly because the learning curve is perceived to be variable and also because of the lack of consistent evidence on which to base a recommendation.

To look at this question further, we have also conducted a similar prospective analysis in our own institution of the diagnostic accuracy of EBUS-TBNA. This involved one operator only who was previously trained in the technique elsewhere. One hundred sixty consecutive EBUS-TBNA procedures were performed over an 18-month period for a similar unselected cohort of patients with mediastinal or hilar lymph nodes in a UK center receiving tertiary referrals for EBUS-TBNA. Patients were included with lymph nodes >10 mm short axis diameter on CT scan. Two hundred ninety-two nodes were sampled in 160 patients (84 with lung cancer, eight with extrapulmonary carcinoma, three with lymphoma, 37 with positively diagnosed benign pathologies, and a further 28 with reactive nodes stable or regressing on prolonged follow-up). Diagnostic accuracy (in percentages) and number of nodes sampled are as following, in order of consecutive octiles from 1 to 20 until 140 to 160: 85, 85, 90, 90, 95, 95, 100 and 2, 2, 2, 1.5, 1.5, 1.6, 1.8, 2, respectively.

Interestingly, the diagnostic accuracy continued to improve up to the 140th to 160th octile (although appearing to peak a little earlier), in keeping with the data from Fernández-Villar et al, although the number of nodes sampled did not increase with time. These data and those of Fernández-Villar et al suggest the learning curve for EBUS-TBNA may indeed be longer than expected. There is perhaps an argument for all specialist societies to specify a minimum number of at least 100 EBUS-TBNA procedures until this question is further definitely answered.

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Response

To the Editor:

We thank Dr Medford for his interest on our study, and we are delighted that he has shown interest in the subject reflecting the importance of establishing the optimal learning curve to perform endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA). The new British Thoracic Society Interventional Bronchoscopy guidelines indicate that these numbers are arbitrary and that the available evidence indicates that every individual has a different learning curve. We agree that the absence of evidence on the number of procedures required to achieve the optimal learning curve is a consequence of the variability of published studies. Differences may be explained not only by the variability in training or learning curve of each bronchoscopy team but also by aspects such as the type of sedation, the possibility of immediate cytologic assessment by a pathologist, the experience of these or the other members of the team who performed the procedure, the size or location of the lymph nodes, and the prevalence of its affection influencing EBUS-TBNA results. Thus, factors should be taken into account when interpreting the results from all the studies.

The results obtained by Dr Medford are similar to ours, reaching between 90% and 100% diagnostic accuracy from the 140 procedures performed, compared with our numbers of diagnostic accuracy >95% in 120 procedures. As in our study, they also achieve the number of nodes sampled variable, and they included in the analysis other specific etiologies different from lung cancer, such as lymphomas, extrapulmonary carcinoma, and benign pathologies. Another important similar issue is that the variable used to assess diagnostic yield, in addition to obtaining adequate samples, was the accuracy of the test rather than sensitivity. This parameter includes not only true positive samples in the numerator but also true negatives, which are especially frequent in series such as ours and include small lymph nodes and benign pathologies. The