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Learning Curve for EBUS-TBNA: Longer than We May Think

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Dear Editor,

The recently published study on the learning curve for endobronchial ultrasound-transbronchial needle aspiration (EBUS-TBNA) is a welcome addition to the state of understanding of this important topic [1]. It is of course attractive to be able to adopt a stance whereby 25 procedures are thought to be sufficient to achieve acceptable standards in EBUS-TBNA so that more trainees can be 'trained' and service requirements can be met in a shorter space of time. However, the key issue is what should be the metrics for training studies in EBUS-TBNA. Sample adequacy and diagnostic accuracy are intimately linked and are both important. But what are the thresholds for minimum acceptability in diagnostic accuracy, and is the learning curve really only 20–25 procedures?

We and others [2–5] have previously looked at this. Interestingly, in two independent studies [2, 3], diagnostic accuracy peaked with a 95% accuracy at 100 procedures, peaking at a 100% accuracy in the longer study at 160 procedures [2]. At our own institution, two other EBUS bronchoscopists have attained an accuracy of >95% (98.4 and 97.6%), but again in excess of 100 procedures (122 and 163) and both reaching a 90% accuracy after 50 procedures, adding support to the previous findings (unpublished data). This has led to much discussion about supporting a minimum of 50 procedures [6], mirroring the American College of Chest Physicians recommendations [7], although in the other study, accuracy was only 83% at 60 procedures, climbing to 90% at 80 procedures [3]. A recent UK study using cusum analysis further demonstrated the heterogeneity of learning amongst experienced bronchoscopists, including two of five studied operators who were still in the learning phase at 100 procedures [4]. A more

recent North American study using more detailed metrics found ongoing improvements at 200 procedures amongst trainees as well as a failure rate of 33% to attain expert standards at all even at that time [5].

In conclusion, learning appears to be heterogeneous, but there must be a common minimum acceptable standard in diagnostic accuracy to aspire to, accepting the fact that other confounding factors exist such as lymph node size, rapid on-site cytology, sedation type, bronchoscopic and pathologic expertise and disease prevalence. If we accept that the minimum standard should at least be a 90% accuracy, the minimum number of procedures seems to be 50–80. If the bar is raised to a 95% accuracy, then >100 procedures would appear to be necessary, with support for this from four studies [2–5]. A consistency of acceptable standards between organisations would help maintain standards, planning of curricula and future studies in this area.

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