LETTER TO THE EDITOR

Additional cost benefits of chest physician-operated thoracic ultrasound (TUS) prior to medical thoracoscopy (MT)

Dear Editor,

As well as reducing delays for patients waiting for departmental thoracic ultrasound (TUS) for pleural procedures as reported by Bateman et al.,¹ chest physician-operated decubitus thoracic ultrasound (TUS) prior to medical thoracoscopy (MT) when an artificial pneumothorax technique is not introduced may have additional benefits which have been reported in two studies.²,³ This has recently been utilised in one institution and reduced pleural access failure (defined as inability to aspirate pleural fluid) rate from 16.7% to zero in two series of 30 patients undergoing single port MT without an artificial pneumothorax.⁴ This has prevented patients having to undergo further procedures.

Not all centres use chest physician-operated TUS. The greatest barrier to this is cost. A basic portable TUS machine costs between £13,500–£22,000 depending on technical specification. Some cost reductions can be achieved using charitable funds, ex-demonstration models and local negotiation but it is key to demonstrate cost benefits of TUS.

In the MT cohort of 30 patients without TUS,⁴ 5 patients required extra investigations (as pleural access was not possible) leading to further costs to the commissioners: 3 CT-guided pleural biopsies (CTBx) and 2 video-assisted thoracoscopic surgery (VATS) pleural biopsies. On average, 60 patients undergo MT in our institution annually, extrapolating to 6 CTBx and 4 VATS procedures. From the 2009/10 National Tariffs, this would result in an extra cost to the commissioners of £14972.⁵ It is therefore estimated that in 1–1.5 years, sufficient cost savings to the commissioner could be generated to cover the cost of a basic portable TUS machine.

The limitations of this extrapolated analysis are acknowledged. It relates to single port MT without creating an artificial pneumothorax and may not relate to other variations of MT. Failure to enter the pleural cavity in the initial TUS cohort⁴ can sometimes be anticipated on the CT scan showing loss of volume, pachypleuritis or calcification and similar rates of pleural access failure may not be replicated in other studies. In other centres, radiology may deliver all TUS services but in centres where radiology capacity is more limited, then chest physician-operated TUS may be helpful. Finally, it is acknowledged that this theoretical reduction would require validation in studies of chest physician-operated TUS.

The potential cost benefits of TUS have been deliberately underestimated and the additional benefits already described by Bateman et al.¹ of reducing the time to diagnosis for inpatients have not been included (avoiding waits for radiology-operated TUS) and reduced length of stay: a reduction of just one hospital day for 150 patients with pleural effusion over a year would lead to an actual cost reduction of approximately £34,050 (£227 per night stay, UHL Trust Corporate Management Accountant Department, personal communication). Other potential cost savings not included are TUS-guided supraclavicular node aspiration (of impalpable nodes) in reducing lung cancer diagnosis waiting time, avoidance of other more invasive investigations and reducing time to treatment.⁶

Despite all the above limitations, in summary it is possible to generate a plausible business case for acquisition of portable TUS for all respiratory centres encountering patients with pleural effusion especially those using single port MT. Successful acquisition of portable TUS will improve the quality of care and safety for patients undergoing single port MT.

Conflict of interest statement

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References


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