Calculation of individual expected pleural drainage from total body lymph flow: a guide for fast-tracking removal of chest drains

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We read with great interest the recent original research article by Bjerregaard et al. [1]. By reporting pertinent 30-day outcomes for fast-track chest tube removal following video-assisted thoracoscopic (VATS) lobectomy with <500 ml in 24 h, this paper has the potential to change thoracic surgical practice regarding safe acceptable upper limits of pleural fluid drainage. As mentioned in the Discussion section on study limitations, we propose that it may be interesting for the authors to pursue their 24-h pleural fluid output data prior to chest tube removal. It is unclear how many of the analysed patients actually had pleural fluid drainage approaching the stated upper limit of 500 ml in 24 h. If they are not a majority, this might change the ultimate study conclusion, with implications for patient management. Understanding that the national database employed for this research limited the authors to providing data on <500 ml in 24 h, we would like to know if the authors consider it feasible to conduct an institutional level chart review on their reported cases with the following two goals:

(1) To determine the pleural fluid drainage in the 24 h prior to chest tube removal, and if there is a definable upper limit associated with the primary outcome of recurrent pleural effusion requiring intervention.
(2) To obtain basic patient anthropomorphic data to estimate maximal pleural drainage volumes, and to determine if there is an association with the primary outcome [2, 3].

To our knowledge, no previous studies on postoperative pleural drainage have assessed the relationship of calculated maximal pleural drainage volumes of individual patients to complications of recurrent pleural effusion. Instead of all-encompassing 24-h upper limits of pleural fluid drainage such as 500, 450, 400 or 300 ml set forth by previous authors [1, 4–6], it may be more appropriate to calculate the expected maximal daily pleural volume of individual patients to determine their safe upper limit for chest tube removal. The literature on pleural physiology informs us that these calculations are feasible and simple [2, 3]. This approach to expected pleural drainage is analogous to calculating an individual’s appropriate IV fluid maintenance infusion rate based on anthropomorphic data. We congratulate the authors for their contribution to the thoracic surgical literature on fast-tracking removal of pleural drains.

REFERENCES


Reply to McGuire and Gilbert

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We thank McGuire and Gilbert for taking interest in our work on fast-tracking chest tube removal in video-assisted thoracic surgery (VATS) lobectomy [1, 2]. To clarify, the perioperative data included in our study were collected from an institutional database, whereas the 30-day follow-up included data on readmission from the ‘E-journal’, which can be considered a national database [2]. During the study period, the policy of our department, followed by all surgeons, was removal of chest tubes following VATS lobectomy if serous outputs were <500 ml in 24 h. Our study was a retrospective assessment of the consequences of this practice in the context of recurrent pleural effusions requiring an intervention [2]. We actually did review approximately 50 charts in an attempt to collect detailed data on the volumes of chest tubes in the last 24 h preceding removal, but the results were unsatisfactory due to lacking or imprecise documentation in the charts; therefore, we do not consider it feasible to conduct an institutional level chart review. However, we agree that it is highly relevant to define a more precise volume of chest tube outputs that may be predictive of recurrent pleural effusions, but this will not change the clinically relevant conclusion of our study that up to 500 ml/day can be accepted as a general minimum limit in adult patients after VATS lobectomy.

Including collection of patient height and weight in a prospective study would allow for the calculation of expected daily productions of pleural fluid for the individual patients and might be interesting in future studies that look on the possibility to go beyond our present set limit.

REFERENCES


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