



# Chest ultrasound: enhanced recovery after surgery (ERAS) best friend in general thoracic surgery

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*Provenance:* This is an invited article commissioned by the Academic Editor Dr. Shuangjiang Li (Department of Thoracic Surgery and West China Medical Center, West China Hospital, Sichuan University, Chengdu, China).

*Response to:* Wei X, Li S, Cheng S, *et al.* Does daily chest ultrasound in the postoperative period contribute to an enhanced recovery after surgery pathway for patients undergoing general thoracic surgery? *J Thorac Dis* 2019;11:S1246-9.

Submitted Jun 28, 2019. Accepted for publication Aug 13, 2019.

doi: 10.21037/jtd.2019.08.84

View this article at: <http://dx.doi.org/10.21037/jtd.2019.08.84>

We read with great interest the editorial by Dr. Wei *et al.* (1) on how post-operative daily chest ultrasound may contribute to an enhanced recovery after surgery (ERAS) for patients undergoing general thoracic surgery.

In agreement with the authors, we believe that chest ultrasonography (CU) may offer several advantages over chest radiography to identify early complications.

For example, thoracic ultrasound can offer advantages in terms of sensitivity with respect to chest radiography on the diagnosis of pneumothorax (2), even if a disadvantage emerges in terms of specificity (3). The possibility to detect the presence of pneumothorax may lead to an early management of suction if needed, reducing chest tube stay or hospitalization. Another advantage regarded the possibility to note in real time its appearance in case of chest tube clamping or connection to Heimlich valve, reducing the needed of chest X-ray.

We think that these are great advantages using CU and we are interested to know if the authors have experience in this field.

Moreover, in agreement with the authors, we believe that thoracic ultrasound plays a fundamental role not only in the diagnosis but also in the study of pleural effusion and pulmonary consolidations (4,5).

In particular, we reported, with the patient's collaboration, the possibility to identify a lung consolidation instead post-operative atelectasis with the capacity of

early identification of lung infection (5). Nevertheless, it is appropriate to specify that, especially in collaborative patients, CU is a dynamic exam, analyzing the different aspect of the lung and the pleura using different point of views, impossible to obtain using chest X-ray due its static nature. These alterations may be detected before patient's symptoms, or may be promptly investigated in case of clinical alterations appearance. Indeed, using CU is possible to anticipate the investigation and use chest X-ray or computed tomography such as second line exams.

Finally, we think that these CU characteristics are fundamental in ERAS patient management, with the possibility to analyze pleural effusion (free, lobulated, with clots), lung consolidation (dynamic or static after cough) or investigating the diaphragm, anticipating alterations detection and giving the appropriate therapy in a rapid period.

In conclusion, in our experience, thoracic ultrasound is a valid and effective method capable of preventing, investigating and following complications in patients undergoing general thoracic surgery allowing easier adhesion to ERAS.

Based on the reported observations, we would greatly appreciate the authors' reflections on the topics discussed.

## Acknowledgments

None.

## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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**Cite this article as:** Chiappetta M, Iaffaldano A, Petracca Ciavarella L, Meacci E, Margaritora S. Chest ultrasound: enhanced recovery after surgery (ERAS) best friend in general thoracic surgery. *J Thorac Dis* 2019;11(Suppl 15):S2026-S2027. doi: 10.21037/jtd.2019.08.84