Published in final edited form as:
Eur J Emerg Med. 2014 October ; 21(5): 387–388. doi:10.1097/MEJ.0000000000000150.

Limiting acute respiratory distress syndrome in the emergency department: a survey of US academic emergency medicine physicians

Brian M. Fuller[a] and **Nicholas M. Mohr**[b]

[a]Departments of Emergency Medicine and Anesthesiology, Division of Critical Care Medicine, Washington University School of Medicine in St Louis, St Louis, Missouri

[b]Departments of Emergency Medicine and Anesthesiology, University of Iowa Hospitals and Clinics, Iowa City, Iowa, USA

To the Editor: We present a descriptive, cross-sectional survey of U.S. academic emergency medicine (EM) physicians to elaborate on a concept that we strongly believe needs further study: early mechanical ventilation and prevention of acute respiratory distress syndrome (ARDS) by targeting the emergency department (ED).

ARDS is a devastating form of respiratory failure, and a leading cause of death and prolonged disability in the critically ill.[1] Previous research has focused on therapies aimed at treating the syndrome in the intensive care unit (ICU) after its onset. Most of the clinical trials have failed.[2] Given few treatment options that exist for ARDS, prevention of the syndrome should be prioritized. Our work has shown that despite the ED being the entry point for many of the most at-risk patients for ARDS, no clinical studies have been performed in this location.[3] We believe this to be a significant knowledge gap and targeting the ED for ARDS prevention has life-saving potential. However, previous data has shown that critical care interventions deemed to be complex are not readily adopted in the ED.[4] We therefore believe it necessary to assess physician need for data and interventions in this domain prior to the conduct of clinical trials.

This survey study was designed to quantify the proportion of academic EDs that initiate prolonged mechanical ventilation, and to assess academic emergency physicians' willingness to adopt ARDS prevention strategies after endotracheal intubation. An electronic mail survey was sent to academic EM physicians (one physician per site) at 43 U. S. centers. All study centers were listed by the Society for Academic Emergency Medicine as hospitals with approved training programs. For wide demographic and geographic diversity, one center per state with a residency training program was contacted. The questions included in the survey were:

1. Do emergency medicine physicians in your hospital intubate patients for both medical and surgical indications?

Correspondence to Brian M. Fuller, MD, MSCI, Departments of Emergency Medicine and Anesthesiology, Division of Critical Care Medicine, Washington University School of Medicine in St Louis, 660 South Euclid Avenue, Campus Box 8072, St Louis, MO 63110, USA, Tel: +1 314 747 5368, fax: + 1 314 362 0419, fullerb@wusm.wustl.edu.

2. Do intubated patients in your department routinely stay in the ED for several hours?
3. Are emergency physicians ultimately responsible for management of mechanical ventilation for patients in the emergency department prior to transfer to an ICU?
4. Do you feel that the EM literature comprehensively guides your ventilator management of patients in the ED?
5. If a cost-saving intervention could improve patient safety by decreasing the incidence of ARDS, would you use it?

The response rate was 86% (n= 37). Endotracheal intubation by EM physicians and initiation of mechanical ventilation was commonly performed (94.6%). Intubated patients routinely received mechanical ventilation for several hours in the ED (73%). EM physicians were ultimately responsible for the management of mechanical ventilation prior to ICU transfer (100%), despite a lack of literature to guide ED-based mechanical ventilation (78.4%). EM physicians also cited a willingness to adopt an intervention that could improve patient safety by decreasing the incidence of ARDS (100%).

This survey highlights the fact that prolonged mechanical ventilation in U.S. EDs is common and U.S. emergency physicians would be willing to adopt preventive therapies for ARDS. Increasing ED utilization and prolonged stays for the critically ill is not a new finding. In the context of mechanical ventilation and ARDS prevention, this burden will worsen as the number of mechanically ventilated patients is on the rise.[5] Injurious mechanical ventilation can lead to progression to ARDS within hours (i.e. while patients remain in the ED), therefore ARDS prevention originating in the ED makes complete physiologic sense as well.

This survey is limited in that it did not prospectively measure mechanical ventilation in the ED. It is therefore only a measurement of physician perception. With a small number of respondents, it is possible that these data may not represent a majority opinion amongst EM physicians. All surveys are prone to sampling error, but we believe the wide geographic distribution of the survey sites does make this a more representative sample. Our high response rate is also much better than most survey studies. The study did not include any non-academic centers, but we do believe it parallels the literature with respect to ED utilization, mirrors real-world practice, and allows us to draw conclusions about physician willingness to prevent ALI.

To conclude, the ED represents an unstudied location and unstudied patient population for the mitigation of ARDS; we propose this is the most logical place to start.

REFERENCES

1. Rubenfeld GD, Herridge MS. Epidemiology and outcomes of acute lung injury. Chest. 2007; 131(2):554–562. [PubMed: 17296661]
2. Phua J, Stewart TE, Ferguson ND. Acute respiratory distress syndrome 40 years later: Time to revisit its definition*. Critical care medicine. 2008; 36(10):2912. [PubMed: 18766113]

3. Fuller BM, Mohr NM, Drewry AM, Carpenter CR. Lower tidal volume at initiation of mechanical ventilation may reduce progression to acute respiratory distress syndrome-a systematic review. Crit Care. 2013; 17:R11. [PubMed: 23331507]

4. Jones AE, Kline JA. Use of goal-directed therapy for severe sepsis and septic shock in academic emergency departments. Critical care medicine. 2005; 33:1888–1889. [PubMed: 16096485]

5. Needham DM, Bronskill SE, Calinawan JR, Sibbald WJ, Pronovost PJ, Laupacis A. Projected incidence of mechanical ventilation in Ontario to 2026: Preparing for the aging baby boomers*. Critical care medicine. 2005; 33(3):574–579. [PubMed: 15753749]