

preceded by a recruitment maneuver (4–6). Indeed, the use of elevated airway pressure (i.e., up to 45 cm H<sub>2</sub>O) during the titration was monitored by combining devices such as an esophageal balloon, transthoracic ultrasound, and electrical impedance tomography to ensure safety during the procedure. No issues were recorded while treating 13 consecutive patients over 2 years. As a result of the titration, a median further increase in PEEP of 5 cm H<sub>2</sub>O was required. Notably, the improvement of oxygenation was not associated with the hemodynamic impairment. Furthermore, likely because of the avoidance of ECMO, the length of the ICU stay was reduced.

In contrast, all the obese patients who did not undergo PEEP titration maneuvers before receiving ECMO experienced extended ICU stays and, despite not being statistically significant, demonstrated a trend toward higher mortality.

Further multicenter retrospective work by Florio and colleagues found that patients in whom ARDS was diagnosed, who were undergoing a lung rescue team protocol (50 patients; body mass index [BMI], 54 ± 13 kg/m<sup>2</sup>) compared with a standard protocol (70 patients; BMI, 49 ± 9 kg/m<sup>2</sup>), had significantly higher PEEP (9 [8–10] vs. 19 [18–20] cm H<sub>2</sub>O) on Day 2 (6). This difference in PEEP continued on Days 3 and 4. In addition, on Days 2, 3, and 4 of standard versus lung rescue team protocols, the authors noted statistically significant improvements in driving pressure and PaO<sub>2</sub>:FiO<sub>2</sub> ratio and reduced vasoactive inotropic scores (6). Although difficult to compare, the average PEEP of 20 cm H<sub>2</sub>O in this patient cohort is approximately 30% higher than the average pre-ECMO PEEP found in the study by Rudym and colleagues.

We agree with the authors that BMI should not be a determining factor in ECMO suitability. Nevertheless, the available evidence strongly suggests that initiating venovenous ECMO, a high-risk, high-resource therapy, in obese patients with ARDS without prior individualized lung optimization may be premature. ■

**Author disclosures** are available with the text of this letter at [www.atsjournals.org](http://www.atsjournals.org).

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## Reply to: Candidacy for Extracorporeal Membrane Oxygenation Should Start with Ventilatory Support Optimization

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### From the Authors:

Extracorporeal membrane oxygenation (ECMO) support can be safely used in patients with acute respiratory distress syndrome with obesity (1). This patient population is characterized by different lung mechanics compared with patients without obesity, which, in turn, can affect how these patients present and their management.

We thank Zadek and colleagues for their thoughtful letter. As they point out, positive end-expiratory pressure (PEEP) optimization is best suited to overcoming elevated pleural pressure in patients with obesity and improving oxygenation. They have demonstrated the successful implementation of esophageal balloon monitoring, in combination with transthoracic ultrasound, and electrical impedance tomography (EIT) in PEEP titration, albeit in a small population and lacking a robust control group, which renders the results limited regarding the conclusions that may be drawn (2).

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Originally Published in Press as DOI: 10.1164/rccm.202310-1783LE on November 16, 2023

We agree with Zadek and colleagues that avoidance of ECMO would certainly be preferred, as ECMO is associated with numerous potential complications, requires substantial intensive care resources, and is expensive. We similarly agree that if esophageal balloon monitoring and EIT were widely available with accepted, evidence-based protocols for optimization, then the use of these resources for optimal PEEP delivery before ECMO cannulation would, of course, be ideal (3). In this context, patients with obesity could be the target population to undergo a thorough assessment of lung mechanics before the decision for ECMO is made. However, the current standard for optimization before ECMO involves the use of low-volume, low-pressure ventilation strategies, prone positioning, and possibly neuromuscular blockade. In contrast, expertise in esophageal balloon monitoring and EIT is lacking at many centers, as are universal protocols for their use or clear evidence of benefit from large randomized clinical trials comparing such a strategy with the current standard. Although the authors should be applauded for pushing the field toward a more personalized (and nuanced) approach to optimizing patients with obesity before cannulation and trying to avert the need for ECMO, the ability of clinicians to apply their work is still limited at this time. In the interim, the data, albeit observational with the inherent limitations of no control group and the lack of a standardized protocol, suggest that using the currently accepted management approach, patients with obesity should not be excluded from receiving ECMO when they meet inclusion criteria. ■

**Author disclosures** are available with the text of this letter at [www.atsjournals.org](http://www.atsjournals.org).

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## Retraction: Altered Antibiotic Pharmacokinetics during Extracorporeal Membrane Oxygenation: Cause for Renal Function?

The letter by Li and colleagues (1), published in the April 1, 2023 issue of the *Journal*, is being retracted by its authors. This action is being taken because significant portions of the text were paraphrased from a letter by Silva, Udy, and Baptista (2) that appeared in the September 2020 issue of *Antimicrobial Agents and Chemotherapy*. In addition, the Silva, Udy, and Baptista publication was not cited in the reference section.

The authors apologize to the *Journal* and its readers, as well as to Drs. Silva, Udy, and Baptista. ■

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1. Li Y, Zhang Y, Wu X. Altered antibiotic pharmacokinetics during extracorporeal membrane oxygenation: cause for renal function? *Am J Respir Crit Care Med* 2023;207:951–952.
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