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Extubation during extracorporeal membrane oxygenation therapy in adults: A qualitative study on experts' perceptions

Statement of the Problem: Extracorporeal membrane oxygenation (ECMO) is a modification of intraoperative cardiopulmonary bypass used in adults for severe cardiac, cardiopulmonary or respiratory failure. Used as salvage therapy for decades, its application proliferated fourfold, and the number of ECMO centers threefold over the past 10 years. 1 Additionally, while invasive mechanical ventilation (IMV) during ECMO therapy has been the mainstay in airway management, the practice of liberation from it is growing, especially as removal of the endotracheal tube (extubation). 2, 3 However, the timing and the process leading to extubation remains a conundrum. 4, 5 Moreover, the literature lacks any extubation

guidelines applicable for ECMO in adults and is scarce for the rising need of clinicians. 5 The aim of this study was to better understand perceptions of expert clinicians regarding extubation during ECMO in adults, and utilization of a guideline/algorithm.

Methodology & Theoretical Orientation: A qualitative study was utilized, including purposeful sampling, a homogeneous approach and focus group discussions. It was conducted at an international conference with a dedicated focus group room at the conference venue. Discussions were recorded and transcribed verbatim, followed by qualitative content analysis performed concurrently and independently by both co-researchers.

Findings: Participation in this study was global and included experts in ECMO. Experts described managing airway during ECMO differently and having difficulties in achieving extubation. Of the ten themes identified, two were the main focus of discussions: extubation guideline and work culture. Fifteen percent of experts reported having a guideline, and all described it as desired. The culture was labelled to be powerful with variations in approach to extubation during ECMO.

Conclusion & Significance: Experts unanimously agree on the usefulness of an Extubation guideline/algorithm for the majority of ECMO patients. The study suggests collecting data on evidence-based practice, as a prospective cohort research study.

Biography

Monika Tukacs has her expertise in extracorporeal membrane oxygenation (ECMO), its physiology and clinical application, and is passionate about evidence-based research in ECMO. Her pioneering in early recognition of the importance of liberating from invasive mechanical ventilation during ECMO is fundamental. The paucity in literature has led her to perform a qualitative study on experts' perceptions about ECMO and Extubation in adult patients. This ground-breaking investigation has already raised an interest of researchers internationally. She has recently been asked to join in developing and conducting a multi-center prospective research study on the topic. Her contribution to this innovative application of ECMO therapy trailblazes the path towards the future of contemporary ECMO

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Themes and Definitions	Subthemes	Examples
1. Guideline <i>Recommended practice that streamlines the extubation process during ECMO, yet allows discretion in its use</i>	1.1 Elements of a guideline	1.1 ... there is no evidence-based guidelines that'll tell you when to extubate someone on ECMO... (4/15)
	1.2 Perceptions about the usefulness of a guideline	1.2 If you knew this was valuable, if you knew getting the patient extubated is really important because outcomes are better if you do this, then I would be more willing to take the risk... If I knew... I'm taking some risk here, but I know there's evidence that says, by doing this, we're gonna get, you know, 20 percent more survivors. But I don't know. We don't have that right now. (1/17)
2. Culture <i>A theory or attitude that acts as a guiding principle for behavior regarding ECMO</i>	2.1 Institutional	2.1 One, we intubated, like, an hour and a half afterwards, and we didn't want to. We were kind-of forced. ... our program is like building a second floor on an older house. And, so we're having to do a lot of, like, okay, the pipe comes up over here, and the wires come over there, and we're not allowed to choose where the wires and the pipe are coming up... (1/7)
	2.2 Unit-based	2.2 The hardest thing for that (ECMO cannulation without intubation) is, probably, just sticker shock... say I want to cannulate this patient for VA ECMO and not intubate him. (1/11)

Table 1. Extraction from content analysis. Most diverse and challenging themes that were identified, with subthemes and relevant examples of experts' quotes.