**Optimal Sedation Strategy in ECMO Care**

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**Abstract:**

Background: Appropriate sedation during extracorporeal membrane oxygenation (ECMO) has not been well studied. On the other hand, it is reported that early spontaneous breathing in severe ARDS can cause patinet self-inflicted lung injury (P-SILI). The appropriate timing to shift from sedation to awakening, the appropriate awake/sedation level, the adjustment of medications, and the risk-benefit of tracheostomy are investigated based on the literatures and the our experience.

Methods: literature review.

Results: While awakening patients improves clinical symptoms and enables communication, discomforts are associated with attached ECMO device and the ICU environment. The patients who need ECMO due to severe ARDS are initially managed by deep sedation. If excessive effort breathing or coughing occurs, neuromuscular blocker (NMB) is used to manage spontaneous breathing. If prolonged ECMO is required, sedative medications are adjusted to a appropriate level of awakening after tracheostomy. According to the literatures, the use of NMB was higher in respiratory VV ECMO than in cardiac VA ECMO, while the use of intravenous sedatives was lower and the use of oral major tranquilizer was higher (*DeGrado JR. J Crit Care 2017*). Fourty five percent of patients on ECMO had tracheostomy, and 67% of them were done during ECMO (*Schmidt M. Crit Care 2021*). In addition, the intention to perform tracheostomy during ECMO was related to the longer duration of ECMO. Extubation was feasible in cardiac ECMO and pre-lung transplant management, and acute excerbation of COPD. On the other hand, extubation for ARDS was controversial (*Tukacs M. Heart Lung 2021*).

Conclusions: It is reasonable to aim for awakening during ECMO, but the appropriate sedation/awakening level should be decided, which can be adjusted with an opioid, dexmedetomidine, and oral major tranquilizer.