1367: COST-EFFECTIVENESS OF ECCO2R IN THE MANAGEMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)

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COST-EFFECTIVENESS OF ECCO2R IN THE MANAGEMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)

Olivier Ethgen, Dilip Makhija, Stephen Russell, Kai Harenski, Alain Combes, Armand Mekontso Dessap, Philippe MORIMONT, Michael Quintel

Learning Objectives: Mechanical ventilation (MV) is a cornerstone in the management of ARDS patients. Recent research suggests that lung protective ventilation (LPV) with lower tidal volume (Vt) and driving pressure (ΔP) could improve survival (NEJM 2015; 372:747–55). Extra-corporal CO2 removal (ECCO2R) enables LPV by allowing lower Vt & ΔP while normalizing patients' pH and PaCO2 within normal ranges (Critical Care (2016) 20:36). This study evaluates the potential cost-effectiveness of ECCO2R-enabled LPV in France.

Methods: A state-transition model was used to compare the outcomes of ARDS patients' across 3 ventilation strategies: MV (no ECCO2R at all), LPV (Vt 6mL/kg PBW and Pplat 25–30 cm H2O; ECCO2R for patients with PaCO2> 55 mm Hg) and Ultra-LPV

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RAPID DEVELOPMENT OF CALCIPHYLAXIS ON VENOVENOUS ECMO

Vikram Bajwa, Ravindra Gupta

Learning Objectives: Uremic arteriolopathy (calciphylaxis) is a serious and life-threatening pathology characterized by progressive calcification of the arterioles with subsequent cutaneous ulceration. The vast majority of cases occur in patients with ESRD who are on HD or who have recently received a renal transplant. Here we present a case of the rapid development of significant calciphylaxis in a critically ill patient on VV ecmo.

Methods: A 22-year-old woman with a history of SLE/APLS, ESRD secondary to FSGS s/p renal transplantation complicated by rejection on peritoneal dialysis and secondary hyperparathyroidism who presented to the hospital with acute respiratory failure with BAL findings consistent with diffuse alveolar hemorrhage requiring VV ECMO. She developed painful necrotic skin lesions on both great toes, purpura with ulcer formation in her calves and buttock region. These lesions were biopsied and consistent with calciphylaxis. Her PTH was uptrending coinciding with hypercal-

(Vt 3–4 mL/kg PBW Pplat 20–25 cm H2O; ECCO2R for all patients). The model used partitioned survival times across 3 health- states: alive & ventilated, alive & weaned from ventilation, dead. Baseline characteristics, ventilation settings, ventilation duration, survival, ICU and hospital lengths of stay were derived from a large ARDS epidemiology study (JAMA 2016; 315:788–800). Survival benefits associated with lower ΔP were taken from the analysis of more than 3,000 patients enrolled in 9 randomized trials. Health outcomes were expressed in life years (LYs) and quality-adjusted life years (QALYs) gained. Costs were documented from published literature. For sensitivity analyses, all parameters were individually varied within their 95%CI bounds when available or within a ± 20% range, alternatively.

Results: Both LPV and ULPV dominated MV. MV yielded 7.05 LYs, 2.45 QALYs and cost €48,127. In comparison, LPV and ECCO2R produced 2.62 (+0.16) and 2.81 (+0.36) QALYs, respectively. LPV and ULPV also cost less than MV, €45,937 (-€2,189) and €46,258 (-€1,869), respectively. Cost savings were mainly due to the shortening of ventilation duration allowed by ECCO2R, leading to shorter ICU and hospital stays. Results were robust to sensitivity analysis.

Conclusions: ECCO2R-enabled LPV strategies might be cost-saving, providing survival benefit and reducing ICU and hospital costs. Additional data from interventional, observational studies are needed to support this model-based analysis.

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cemia with a peak Ca of 12.8 in the setting of hypoalbuminemia with an increased calcium phosphorus product. CT findings were notable for a marked development of near complete calcification of the left ventricular wall, calcification of the interventricular septum with papillary muscle calcification with linear calcification of the common, internal and external iliac arteries. Widespread, confluent nodular high attenuation opacities at the lung bases were noted, representative of pulmonary calcification.

Results: Normal progression of calciphylaxis has not been defined as early stage clinical and histopathological descriptions have not been clarified in literature. The pathogenesis of this condition is poorly understood but the consensus is that it carries a grim prognosis with mortality ranging from 40–80%. In this particular case there was a rapid development of calciphylaxis in the setting of 7 weeks of VV ecmo; there appeared to be no clinical evidence of calciphylaxis prior to her acute illness. Presumably, the rapid progression of calciphylaxis occurred due to multiple known risk factors; including ESRD, SLE, hypercoaguable state (antiphospholipid syndrome), systemic immunosuppression with rituximab, systemic steroid use and protein malnutrition with hypoalbuminemia.

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