

reflex. **Methods:** N/A. **Results:** N/A **Conclusions:** This case highlights the need to consider narcotic & gabapentin use as a potential cause of DAD in patients with respiratory failure in whom a workup has not revealed an infectious or collagen disease etiology

738

### IMPACT OF SEVERITY OF HYPOXEMIA ON SHORT TERM MORTALITY IN MECHANICALLY VENTILATED PATIENTS

Shruti Gadre<sup>1</sup>, Jorge Guzman<sup>2</sup>, Abhijit Duggal<sup>1</sup>; <sup>1</sup>Cleveland Clinic Foundation, Cleveland, OH, <sup>2</sup>Cleveland Clinic, Cleveland, OH

**Learning Objectives:** The impact of transient or even prolonged hypoxemia on short term mortality is still debated. We studied the impact of hypoxemia at the time of admission or within the first 24 hours of admission to the intensive care unit on the short term mortality. **Methods:** Retrospective study of patients admitted to a quaternary referral medical intensive care unit between January 2008 and December 2012 and requiring invasive mechanical ventilation for acute respiratory failure. The first arterial blood gas at the time of admission or in the first 24 hours of admission to the intensive care unit was recorded and PF ratios were calculated. We defined hypoxemia as a PF ratio <300, and further divided the severity of hypoxemia into 3 categories (mild: PF 300-200, moderate: PF 199-100 and severe: PF <100). **Results:** 4108 patients required invasive mechanical ventilation for acute respiratory failure during the study period. 51.7% were males and the mean age was 60.9 ± 15.4 years. 3164 (77%) had documented hypoxemia during the first 24 hours of admission based on our criteria. 1192 (29%) had mild hypoxemia, 1276 (31.1%) had moderate hypoxemia and 696 (16.9%) had severe hypoxemia. The ICU mortality for the entire cohort was 30.6% (n=1256) and the overall hospital mortality was 37.3% (n=1532). The ICU mortality and hospital mortality was higher in the hypoxemia group compared to patients without hypoxemia (33.2% vs 21.6%; p<0.001) and (39.9% vs 28.6%; p<0.001). The ICU mortality was significantly higher in patients with severe hypoxemia compared to patients without hypoxemia (53.4% vs 21.6%; p<0.001); as was the hospital mortality (58.6% vs 28.6%; p<0.001). There was no significant difference between the ICU mortality and the hospital mortality between patients with mild hypoxemia and those without hypoxemia (23.8% vs 21.6%; p>0.05) and (32.0% vs 28.6%; p>0.05). **Conclusions:** Severe hypoxemia is associated with higher ICU mortality and hospital mortality in patients requiring invasive mechanical ventilation. Patients with mild hypoxemia have similar ICU and hospital mortality compared to patients without hypoxemia.

739

### TRICYCLE: PRELIMINARY RESULTS OF EARLY IN-BED CYCLING WITH MECHANICALLY VENTILATED PATIENTS

Michelle Kho<sup>1,2</sup>, Alexander Molloy<sup>2</sup>, Magda McCaughan<sup>2</sup>, Daana Ajami<sup>2</sup>, Christina Murphy<sup>2</sup>, Laura Camposilvan<sup>2</sup>, France Clarke<sup>1,2</sup>, Deborah Cook<sup>1,2</sup>; <sup>1</sup>McMaster University, Hamilton, ON, <sup>2</sup>St. Joseph's Healthcare, Hamilton, Canada

**Learning Objectives:** Randomized clinical trials (RCTs) showed that (1) rehabilitation started within 1.5 days of mechanical ventilation (MV) and (2) in-bed cycling started 2 weeks after ICU admission improves function at hospital discharge. However, the effect of in-bed cycling started earlier in the ICU stay is unknown. The objective of this study is to assess the feasibility and safety of early in-bed cycling during MV. **Methods:** In this prospective cohort study in a

medical-surgical ICU, we enrol adult patients who are mechanically ventilated ≤ 4 days and who ambulated independently pre-ICU. We offer 30 minutes of in-bed supine cycling 6 days/week throughout their ICU stay. Outcomes: (1) Feasibility: (i) Consent rate and (ii) Intervention delivery; (2) Safety: (i) Events prompting cycling termination and (ii) inadvertent catheter/tube dislodgements. Clinicaltrials.gov: NCT01885442 **Results:** From 10/2013–7/2014, we enrolled 29 of the target sample size of 33 patients; herein we report results from 22 patients who reached hospital discharge. Their age was [mean (SD)] 67.2(11.9) years and APACHE II score was 24.2(7.6). Most 12(55%) were female, and had medical conditions 20(91%). Time from ICU admission to 1st cycling was [median (IQR)] 2.5 (2,4) days. Our consent rate was 29/32(91%). Patients received [median (IQR)] 4.5(2,8) in-bed cycling sessions (total 122), while receiving the following interventions: MV, 91(75%); vasopressors, 6(5%); sedative/analgesic infusions, 43(35%); and dialysis 2(2%). The duration of cycling sessions was [median (IQR)] 30.7 (21.6,30.8) minutes and distance cycled was 1.08 (0.93,3.05) kilometers. Active cycling occurred in 98(80%) sessions. Only 1(0.8%) session stopped due to safety concerns; no device dislodgements occurred. **Conclusions:** Preliminary data suggest that early supine cycling among MV patients is feasible and safe. Final results from TryCYCLE will inform the design of a multicentre pilot RCT of early in-bed cycling in critically ill MV patients.

740

### LUNG ULTRASOUND IN THE NEUROLOGICALLY DECEASED DONOR

Daniel Lebovitz<sup>1</sup>, Robert Jones<sup>2</sup>, Lynn Dezelon<sup>2</sup>, Matt Tabbut<sup>2</sup>, Samir Latif<sup>1</sup>; <sup>1</sup>Akron Children's Hospital, Akron, OH, <sup>2</sup>Metrohealth Medical Center, Cleveland, OH

**Learning Objectives:** Lung transplantation is limited by donor lung availability. Management of donors currently include serial CXRs, ABGs, goal directed fluid management, alveolar recruitment, steroids, naloxone, albuterol/ chest physiotherapy, and repositioning. Real time diagnostics may impact reversible pulmonary derangements in potential lung donors. Thoracic ultrasound (US) acutely identifies pathology in critically ill patients and is equivalent or superior to CXR or CT scans. No prior studies have reported on thoracic US in the management of deceased organ donors. We evaluated thoracic US techniques in identifying abnormal lung pathology in neurologically deceased organ donors and correlated these findings with the current standard approach. **Methods:** Six neurologically deceased donors were evaluated during donor management using bedside lung US. Donors were enrolled sequentially based on availability of experienced physician US operators at a single center. Scans were performed using Lichtenstein 3 Zone or Volpicelli 4 Zone method. Lungs were evaluated for sliding, A/B profile, consolidation or pleural fluid. US operators were blinded to all aspects of donor management. Individual interpretations of all US were recorded and compared for inter-individual variability. US results were subsequently compared to the standard donor data by the Organ Procurement Organization medical directors. **Results:** Bedside thoracic US interpretations compared well to routine testing done during donor management with little inter-individual variability noted. Donor lung US findings correlated with CXR and CT findings of atelectasis, infiltrates, pulmonary effusions, contusions and edema but were available immediately. We show that lung US techniques in living ICU patients remain valid in the neurologically deceased organ donor and may be used real time in donor management. **Conclusions:** Lung US may play a significant role in donor management. It provides real-time, immediate data improving efficiency of lung management interventions that may increase numbers of both lungs and other organs for transplantation.

## Poster Session: Pulmonary 9

741

### PRETRANSPLANT EXTRACORPOREAL MEMBRANE OXYGENATION APPLICATION IN LUNG TRANSPLANTATION

Hyun Joo Lee<sup>1</sup>, Yoohwa Hwang<sup>1</sup>, Jin San Bok<sup>2</sup>, Samina Park<sup>2</sup>, Young Tae Kim<sup>2</sup>; <sup>1</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Hospital, Seoul, South Korea, <sup>2</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Hospital, Seoul, South Korea

**Learning Objectives:** The application of pretransplant extracorporeal membrane oxygenation (ECMO) has been considered as a risk factor with poor outcomes and a relative contraindication to lung transplantation. However, with the shortage of lung donors, an ECMO application during the waiting time for lung transplantation is necessary. The purpose of this study is to review our experiences

with lung transplantations and ECMO. **Methods:** We retrospectively reviewed the clinical data of patients who underwent lung transplantation in our institute. **Results:** From 1996 to 2014, 30 patients underwent lung or lung and heart transplantations: 25 bilateral sequential lung transplantations, four lung and heart transplantations, and one single right-lung transplantation. Idiopathic pulmonary fibrosis and interstitial lung disease associated with connective tissue diseases were the most common underlying diseases (43.3%) while bronchiectasis and Eisenmenger syndrome followed. Among 30 patients, 13 (43.3%) received ECMO during the pretransplant waiting period. ECMO applicants showed higher BMI scores (p=0.025) and mechanical ventilation support (p=0.005) than in the non-ECMO group. Among the 13 ECMO applicants, 12 patients were successfully weaned from ECMO after lung transplantation. The median run-time of ECMO was 12.3 days (2.9–80.1 days) perioperatively. The postoperative mechanical ventilator support period was longer in the ECMO group than that