

~~confounding variables available on the first day. Confounding variables were lactate on admission, mean arterial pressure, GCS, creatinine, thrombocytes, PaO₂, sex, vasopressor use and IV fluids used. The primary outcome was LOS. Secondary outcomes were 28-day mortality and resuscitative measures taken.~~

~~**Results and Discussion:** 1532 patients in database were eligible. After matching, there were 436 patients in <4 lactate samples group and 765 patients in ≥4 lactate samples group. In the matched cohort (covariate std. mean difference <0.1) there was a statistically significant difference in length of stay (mean of 4.15 vs 5.87 days, p=0.002) and dobutamine use (p=0.016) but not in 28-day mortality rate and vasopressor or electrolyte infusion use. In this ICU population, frequency of lactate sampling was linked to a reduced LOS which is in accordance with previous studies on other ICU populations. The other interventional outcomes did not have the same significance. Bias could be present due to confounding variables not taken in account in propensity matching.~~

~~**Conclusion:** In this propensity-matched retrospective cohort study on cardiac surgery patients in freely available AmsterdamUMCdb database LOS was affected by frequency of lactate sampling. Mortality and intervention outcomes were not affected.~~

7333

~~Re-expansion Pulmonary Oedema – an under reported and often missed complication. Can it be avoided?~~

~~Rosenheim Z,¹ Spiking J.¹~~

~~¹Kings College Hospital London – London (United Kingdom)~~

~~**Background:** Re-expansion pulmonary oedema (REPO) is a rare complication following drainage of a pleural effusion or pneumothorax, though it has also been described after removal of a mediastinal tumour and removal of large extrathoracic lesions¹.~~

~~**Case Report:** 76-year-old male presented with increasing dyspnoea one month post CABG. An initial ECG revealed a LBBB. An angiogram showed patent vasculature, however, an echocardiogram revealed a large left-sided pleural effusion. A chest radiograph confirmed the effusion. A chest drain was inserted with >3.5L of blood-stained fluid rapidly drained. The patient immediately deteriorated, with worsening dyspnoea, tachycardia and hypotension and an SpO₂ of 85%. He was initiated on high-flow oxygen. Diuresis was instigated with boluses of furosemide. Despite treatment, he continued to deteriorate with increasing oxygen requirements and worsening hypotension. He was transferred to ITU for vasopressors, invasive monitoring and HFNC. He responded well to treatment and after 48 hours was discharged to the ward for ongoing management.~~

~~**Discussion:** The reported incidence of symptomatic REPO is around 1 in 100. However, the incidence is likely to be higher. Risk factors include prolonged symptom duration, rapid lung expansion with drainage of large volumes and application of highly negative intrapleural pressures (>20cmH₂O)². The pathophysiology is complex. Rapid re-expansion of a collapsed lung results in reversal of hypoxic vasoconstriction, initiating a proinflammatory process that leads to an increase in capillary permeability. When large volumes of air or fluid are removed, the intrapleural pressure becomes markedly more negative, reducing the pressure in the pulmonary interstitium. This creates an increased gradient for fluid movement across the alveolar-capillary barrier, resulting in REPO.~~

~~References:~~

- ~~1. Havrankova et al. Re-expansion pulmonary oedema – fatal complication of mediastinal tumour removal. *Cor et Vasa*. 2013; 55(6) 533-535.~~
- ~~2. Aujayeb A. Re-expansion pulmonary oedema in pneumothorax. *BMJ Case Reports* 2019~~
- ~~3. British Thoracic Society Pleural Disease Guideline 2010.¹ *Thorax*, 65(Supplement II), pp.61-74~~

~~**Learning points:** REPO is serious but potentially avoidable. This case demonstrates that recognition of the patient at high risk for REPO is key. Guidelines suggest limiting fluid removal to 1.5L³. Research is required into the use of intrapleural manometry to assess if routine use can reduce the rates of REPO.~~

7343

Demographics, Risk factors and Outcomes of Critically Ill COVID-19 patients requiring Continuous Renal Replacement Therapy: A National Cohort Study from Malta.

Tua C.¹, Vassallo D.¹, Sciberras S.¹, Buttigieg M.¹

¹Mater Dei Hospital Malta - Msida (Malta)

Background: COVID-19 is predominantly a respiratory disorder, however a number of critically ill COVID-19 patients develop Acute Kidney Injury (AKI) requiring Continuous Renal Replacement Therapy (CRRT). The objectives of this study are to describe the demographics, risk factors and outcomes of COVID-19 patients requiring CRRT in the Intensive Care Unit (ICU) at Mater Dei Hospital, Malta.

Methods: This is an observational prospective study of patients admitted to Mater Dei Hospital ICU with COVID-19.

Results: 252 patients were admitted to ICU with COVID-19 from March 2020 to May 2021. 248 patients were included due to incomplete data in 5 patients. Four patients had End Stage Kidney Disease requiring renal replacement therapy (RRT) prior to admission and were omitted from data analysis. 58 patients (24%) required CRRT during their stay in ICU. Compared to patients not requiring CRRT, patients requiring CRRT were significantly more likely to be male (84% vs 70%, p= 0.04), have pre-existing CKD (24% vs 3%, p<0.001), have a higher median creatinine on ICU admission (133µmol/L [94 – 223] vs 75 µmol/L [61 – 93], p<0.001) and have a higher SOFA score (SOFA: 3.5[2-4], vs 2[2 – 3], p<0.001). Patients requiring CRRT were also more likely to be mechanically ventilated during their stay (95% vs 59%, p<0.001). There was no significant association between CRRT and increasing age and the presence of comorbidities such as hypertension, diabetes, ischemic heart disease and immunosuppression. CRRT was started after a median of 4 days and was continued for a median duration of 6 days. CRRT was strongly associated with increased 28-day mortality, (64% vs 25%, p<0.001). The 28-day mortality of patients requiring both CRRT and mechanical ventilation was 67% compared to 36% for patients requiring only mechanical ventilation. 20 patients (34%) of those requiring CRRT were discharged from ICU, 17 of these were discharged from hospital while 3 died during hospital admission. None of the patients discharged from hospital required ongoing renal replacement therapy (RRT).

Conclusion: This observational study represents all COVID-19 ICU admissions that occurred in Malta from March 2020 to May 2021 in the single institution caring for these patients in the country. We demonstrated a 24% incidence in the use of CRRT with an associated 64% 28-day mortality. 34% of patients requiring CRRT were discharged from hospital, with none requiring ongoing RRT.