Supplement 2: Acute Kidney Injury and Peritoneal Dialysis

Acute kidney injury (AKI) was defined by an increase in creatinine by 0.3 mg/dl within 48 hours or an increase greater than 1.5 times the baseline within seven days of onset and decrease in urine output less than 0.5 ml/kg/hr for six hours.(1) Continuous renal replacement therapy (CRRT) was initiated via temporary dialysis catheter for patients presenting with severe AKI associated with anuria, volume overload, severe acidemia (pH<7.1), and hyperkalemia (K^+> 6 meq/dl) refractory to medical therapy. Due to the acute influx of critically ill COVID-19 patients, we had significant resource strain in hemodialysis machines and dialysis nursing capabilities. Early on, we were limited to 6-12 hours of CRRT per patient with AKI leading to a significant change in our management approach. The use of peritoneal dialysis in acute kidney injury had been previously reported as a low risk, low-cost approach in hemodynamically unstable patients or those with contraindication for CRRT.(2)

We established the use of PD in the acute setting for patients who required urgent renal replacement therapy for solute clearance and volume overload but were too hemodynamically unstable to receive CRRT or due to unavailability of CRRT machine or nursing. As a result, the clinical severity of patients remained similar to those receiving CRRT, and there was no selection bias associated with the selection criteria. Our general surgery team performed bedside peritoneal dialysis catheter placement under complete sterile and airborne precautions successfully. While several patients received PD as the first therapy for AKI, several other patients were transitioned to PD to offload strain on dialysis nursing.

1. KIDGO: KDIGO Clinical Practice Guideline for Acute Kidney Injury. *http://wwwkidney-internationalorg* 2012; 2(1)
2. Ash SR, Bever SL: Peritoneal dialysis for acute renal failure: the safe, effective, and low-cost modality. *Advances in renal replacement therapy* 1995; 2(2):160-163