

# Use of AV Fistula/Graft in End Stage Renal Disease Patients Receiving Continuous Renal Replacement Therapy

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## INTRODUCTION

- Continuous renal replacement therapy (CRRT) is used frequently in end stage renal disease (ESRD) patients with multi-organ failure in a critical care setting
- We report our experience using pre-existing functioning AV fistula/graft as an access in ESRD patients requiring CRRT

## DEMOGRAPHICS

- Retrospective data was collected on ESRD patients in the ICU requiring CRRT from May 2012 to September 2016
- CRRT was performed on 27 patients (15 males, 12 females) with a mean age of 63
- Indication for CRRT was septic shock (13), cardiogenic shock (5), hemorrhagic shock (9)
- AV access included 23 AV fistulas, 4 AV grafts
- 26 required vasopressors, 18 patients required mechanical ventilation
- Etiology of ESRD was DM2 (10), HTN (6), unknown etiology (3), ADPKD (2), SLE (2), reflux nephropathy (1), glomerulonephritis (1), IgA nephropathy (1), Lithium nephropathy (1)

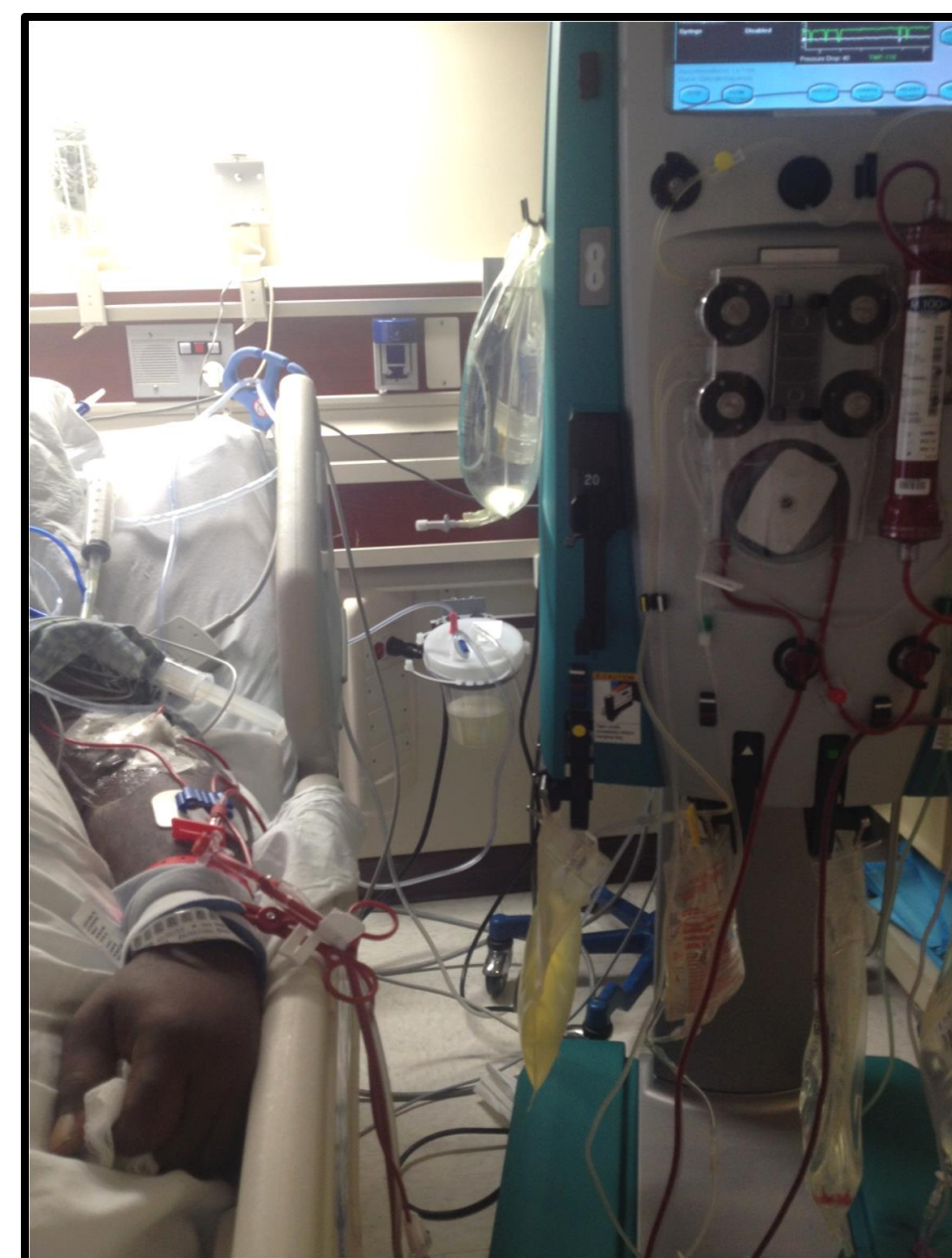
## TECHNIQUE

- Dialysis nursing staff placed 16 gauge plastic angiocatheters (BD Insyte Autoguard) for both arterial and venous accesses
- Angiocatheters were connected via 30" anesthesia extension tubing (Baxter) to the arterial and venous tubing of M100 set with AN69 hemofilter
- Angiocatheters were changed every 72 hours with the change of M100 set with AN69 hemofilter or earlier if CRRT was discontinued
- Extension tubings were secured with a Centurion tubing anchor to the skin
- Angiocatheter's insertion site was covered with a bio-occlusive dressing
- ICU nursing staff monitored CRRT. The extension tubings were flushed with 10 mL NS and clamped if therapy needed to be interrupted

## THERAPY

- Mean blood flow rate was  $137 \pm 26$  ml/min using Prisma/Prismaflex CRRT system
- Pristasate BGK 4/2.5 was delivered at 500-1000 mL/hr as dialysate and Primasol BGK 2/0 or 4/0 was infused at 1500-2000 mL/hr as replacement fluid
- Minimum effluent rate of 20-25 mL/kg/hr was achieved in each patient
- All patients received Citrate Dextrose, solution A as anticoagulation

## CRRT IN PROGRESS USING AVF AS AN ACCESS



## RESULTS

- Total duration of CRRT was 2040 hours over 97 days
- Mean duration of CRRT/day was 21.3 hours/day
- Mean BFR was  $137 \pm 26$  mL/min
- All AV accesses were functioning after the CRRT was discontinued
- 13 patients survived and received intermittent HD using AV access
- These patients were also followed at their outpatient hemodialysis centers
- No AV access bleeding, infection, technical problems were reported

## CONCLUSION

- Our experience suggests that use of AV grafts or fistulas as access with an angiocatheter (connected via an extension tubing while secured with a tubing anchor) for CRRT can be used safely in the ESRD population
- It obviates the need for a double lumen catheter for a venous access and its potential complications
- In addition, the use of AV access in ESRD patients may keep AV grafts or fistulas patent