ARF REQUIRING DIALYSIS: Use of Shift CVVHD vs Conventional Dialysis
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INTRODUCTION
• Acute renal failure (ARF) requiring dialysis carries a high morbidity, mortality. It can be treated with either conventional or shift (8h CVVHD) dialysis.

METHODS
A. Patients: all patients with ARF requiring HD (1999-2008) were included, data obtained from the treatment records from the acute dialysis unit. Electronic medical record and paper records reviewed for demographics, clinical and laboratory data. Dialysis treatment sheets for dialysis parameters and clinical data during dialysis.

B. Dialysis: conventional HD with Volumetric control machines Fresenius 4008H bicarbonate equipped with CRRT chip. All treatments use the relative blood volume monitor (Critline). Shifting CVVHD using Haemotek machines with bicarbonate based solutions.

The rationale to use shift CVVHD was to provide dialysis to a increasing number of ICU patients.

CONCLUSIONS
• Shift CVVHD is equivalent to conventional HD for the treatment of ARF requiring dialysis.
• No difference in mortality was observed between the 2 groups.
• There was a beneficial effect in hemodynamic parameters but no benefit in survival.
• The mortality reported is similar to recent reports.
• It improves the use of a scarce resource (Acute HD RN) when ICU RN are not involved.

RESULTS
A. Patient characteristics:
280 patients included. 60% males, 70.6% white, 19.5% blacks, 11.5% Hispanics.

77% were in the ICU at the time of initiation of dialysis.

Mean hospital stay 21.7d (14)

Mortality was 40.3% no different between the conventional vs shift CVVHD, male vs female, DM vs no DM, eGFR vs not eGFR (fig.1, fig.2).

ABO blood groups and Rh were similar between the groups.

B. Analysis of data using SPSS 13.0 software for descriptive, survival analysis using p<0.05 for significance.

RESULTS
B. Survivors vs non survivors (Table 1)
Non survivors had less hospital stay, less number of treatments, lower pre dialysis BUN more episodes of SBP>100mmHg and hypertensive episodes/hour and lower peak creatinine.

Mean hospital stay 21.7d (14)
Mortality was 40.3% no different between the conventional vs shift CVVHD, male vs female, DM vs no DM, eGFR vs not eGFR (fig.1, fig.2).

Chi-Square 9.8 p=0.04

C. Conventional vs shift CVVHD (Table 2)
The patients receiving shift CVVHD had a lower:
MAP predialysis and post dialysis temperature, UF per hour, peak creatinine, received less heparin and had longer dialysis time.

Table 1: Survivors vs non survivors

Table 2: Conventional vs Shift CVVHD

DIALYSIS TREATMENTS
1600 treatments in 280 patients average 5.6 treatments (5-6).
30% of the treatment done with femoral catheters.

Shifting CVVHD vs conventional HD: Table 3, Table 4
Blood flow was lower (280 vs 370 min/min)
dialyzer K higher (3.2 vs 2.6 mEq/L) (fig 3)
dialysis time was longer (469 vs 340min) (fig 4)
Total Ultrafiltration was higher (3.4L vs 3.3L)
more fluid was given (834 vs 499ml)
less heparin used (806 vs 1935U)
more fluid was given (834 vs 499ml)
total Ultrafiltration was higher (3.68L vs 3.32L)

Fig. 1 Survival/ conventional vs shift HD
Fig. 2 Survival/ shift HD
Fig. 3 Dose CVVHD
Fig. 4 Dialysis Time HD vs shift HD

LITERATURE (FIGS. 8-12)
• No significant difference between the prodialysis values of BUN, creatinine, potassium, Phosphorous and C02 were noted between the 2 groups despite the difference in interdialytic time between the 2 groups. (fig.6, fig.5)

Table 3: Conventional vs shift CVVHD

Table 4: Conventional vs shift CVVHD

Fig. 7 Interdialytic Time
Fig. 8 Pre BUN
Fig. 9 Pre K
Fig. 10: Pre Creatinine
Fig. 11: Pre Phos
Fig. 12: Pre C02

Purpose
• Analysis of all patients with ARF requiring dialysis in a tertiary care center using conventional hemodialysis and shift CVVHD.

Laboratory data: (figs. 8 -12)

• Pre Dialysis Time and prodialysis values for BUN, creatinine, K, Phos, C02 were noted between the 2 groups.

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