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BLOOD FLOW RATE AND SOLUTE MAINTENANCE IN CONTINUOUS RENAL REPLACEMENT THERAPY (CRRT): A RANDOMISED CONTROLLED TRIAL (RCT)

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Blood flow rate (BFR) may be important in the regulation of solutes in patients receiving CRRT. We aimed to assess the effect of BFR on solute control in patients on CRRT.

A prospective ethics approved RCT was conducted over one year in our tertiary ICU. Adult patients with acute kidney injury (AKI) were randomised to 150 or 250 mls/min. Twice daily (12 hrly) patient data were collected for: serum urea, creatinine and Hb, and duration of CRRT treatment delivered for each 12 hours interval. Comparisons of delta urea and creatinine (change from baseline) were analysed using linear regression analysis and ANOVA for repeated measures. Delta urea, creatinine and hours of treatment per 12 hours are reported as mean (SD) and compared using the student t-test.

One hundred patients were randomised with 96 completing the study (150 mls/min – 49; 250 mls/min – 47). Groups were well matched for baseline characteristics with the exception that patients in the 150 mls/min group were slightly heavier (83.5 vs. 75.8 kg, p=0.039). Hours of treatment per 12 hrs (n=854) was 6.3 hrs (3.7) in the 150 mls/min group and 6.7 hrs (3.9) in the 250 ml/min group, p= 0.6. There was no difference between the two BFR groups for delta urea (-0.06 [0.015] vs. - 0.074 [0.01], p=0.42) or delta creatinine (-0.05 [0.01] vs. -0.08 [0.01], p=0.18). Independent variables associated with less reduction in serum urea and creatinine were a low haemoglobin, -0.01 [0.005], p= 0.002; 0.01 [0.005], p= 0.006) and less hours treated; -0.023 [0.001], p= 0.000; -0.02 [0.002], p= 0.001. No effect for body weight was found.

BFR assessed for treatment time over 12 hour intervals did not influence solute control in patients with AKI, however haemoglobin and hours of treatment did affect control of both urea and creatinine.

Disclosure of Interest: None Declared