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Citation: Fealy, N., Aitken, L. M., du Toit, E., Baldwin, I. & Lo, S. (2017). Blood flow rate and circuit life in continuous renal replacement therapy (CRRT): a randomised controlled trial (RCT). Paper presented at the The 41st Australian and New Zealand Scientific meeting on Intensive Care, October 2016, Perth, Australia. doi: 10.1016/j.aucc.2017.02.003

This is the draft version of the paper.

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Link to published version: https://doi.org/10.1016/j.aucc.2017.02.003

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BLOOD FLOW RATE AND CIRCUIT LIFE IN CONTINUOUS RENAL REPLACEMENT THERAPY (CRRT): A RANDOMISED CONTROLLED TRIAL (RCT).

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There is minimal evidence to inform blood flow rate (BFR) during CRRT. We aimed to assess the effect of BFR on circuit life during CRRT.

A prospective RCT was conducted over one year in our tertiary ICU. Adult patients with acute kidney injury were randomised to either 150 or 250 mls/min. Circuit and patient data were collected until each circuit clotted or ceased electively. Duration data for clotted circuits are presented as median (Inter-quartile range) and compared using the log- rank test; p was set at <0.05. Circuit clotting data were analysed for repeated events using a hazards ratio (HR).

One hundred patients were randomised with 96 completing the study (150 mls/min-49; 250 mls/min-47) with 462 circuits; 245:150 mls/min and 217:250 mls/min. Median circuit life for 1st circuit (clotted) was similar for both groups (150 mls/min: 9.1 [5.5, 26] hrs vs. 10 [4.2, 17] hrs; p=0.37). Second and third circuits were also similar. 150 mls/min: 14 [8.5,21] hrs vs. 13.8 [8.5, 16.7] hrs; p=0.44. 150 mls/min:17 [10.5, 28.5] hrs vs.16 [12, 21.5] hrs; p=0.52 respectively . CRRT using 250 mls/min was not more likely to cause clotting compared to 150 mls/min (HR, 1.06 [0.63, 1.78]; p=0.36, variance of the random effect, 1.096 [0.23]). There were no differences in likelihood of clotting for: BMI, weight, vascular access type, length or site, mode of CRRT, INR or platelet count. CRRT with no use of anticoagulation was more likely to cause clotting compared to use of heparin or heparin/protamine (HR 1.61, [1.17, 2.21], p=0.002). Longer APTT was associated with a lower likelihood of circuit clotting (HR 0.98,[0.97, 0.99], p=0.002). Clotting was more probable in males (HR 1.64 [0.87, 3.08] p=0.02).

Blood flow rate did not effect clotting during CRRT. Males and use of anticoagulation and APTT were more likely to affect circuit survival.

Disclosure of Interest: None Declared