A517 - Hemostasis parameter changes induced by filter change in infants on continuous renal replacement therapy

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Introduction:
Exposure of blood to a foreign surface such as a continuous renal replacement therapy (CRRT) filter could lead to activation of platelets (plt) and fibrinogen (fib) trapping. Thrombocytopenia has been reported in adults on CRRT but data in pediatrics are scarce. Our institution uses regional citrate anticoagulation (RCA) as standard of care with prefilter hemodilution and HF1000 filters (polysulfone, surface area (SA) 1.1 m²) regardless of patients’ (pts) age and size. As filter SA is relatively larger in younger pts, we aimed to investigate the impact of CRRT filter change on hemostasis parameters in infants on CRRT in up to first three filter changes.

Methods:
Retrospective chart review

Results:
30 patients < 10 kg were included, age 4.3 (0.5-8) months, weight 5.4+2.4 kg, with 88 filters. Metabolic disease was the most common principal diagnosis (7/30, 23%), liver failure (LF) was the most common comorbidity (12/30, 40%). All patients received prefilter continuous venovenous hemodiafiltration with minimum dose of 2000 ml/1.73m²/h. Thrombocytopenia was common at CRRT start (28/30, 93%). Plts decreased in 74% filter changes (65/88) by 15+70% (pre vs post plt 71 (44-111) vs 50(30-83), p<0.001). Fibrinogen also decreased from 201 (152-261) to 170 (134-210), p<0.001; there was no change in PTT, PT, or INR values before and after filter changes. Bleeding events were seen in 13/30 (43%) of pts (8/12 of LF pts vs 5/18 others, p=0.04), but were not more common in pts who had decrease in plt or fib with filter changes (41% with drop in plt vs 57% without, p=0.66; 47% with drop in fib vs 75% without, p=0.58).

Conclusion:
Thrombocytopenia is common in infants on CRRT. Further decreases in plt and fibrinogen can be seen in with CRRT filter changes if the filters are relatively large compared to patient size. Bleeding events seems more related to underlying comorbidity, and less to changes in hemostasis parameters observed with filter change but would need to be confirmed with further studies.