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P285 -Personalised dialysate flow reduces cost without reduction in dialysis quality

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Dialysate flow (DF) is a configurable component of haemodialysis (HD) treatment. Whilst differing HD technologies require variable flows, in-centre dialysis requires dialysate in excess of blood flow rate. Traditionally fixed rates (dependant on blood flow rate (BFR), clearance or other parameters) have been used. Newer machines can adjust flow dynamically, potentially leading to waste reduction and clearance optimisation. We investigated the impact of such a change in one of our satellite HD units.

115 patients were evaluated. Average age was 67 ± 15 yrs, 71 were male. Average dry weight was 81 ± 20 kg. Patients underwent 2 weeks HD using standard DF (lower flow 500 or higher flow 800ml/min), then 2 weeks HD using optimised DF (1.5x BFR). No other changes were made to therapy. Online clearance (Kt/V) values were obtained for each period.

Average DF dropped by 15% (660 ± 150 ; 562 ± 83 ml/min, $p < 0.001$). DF dropped in the higher flow group (800, 595ml/min, $p < 0.001$), but rose slightly in the lower flow group (500, 526ml/min, $p = 0.018$). There was no overall change in Kt/V (1.34, 1.35, $p = 0.5$). The higher flow group's clearance did not drop with lower DF (1.32, 1.30, $p = 0.15$), but the lower flow group's clearance increased slightly (1.37, 1.40, $p = 0.02$). Dialysis time did not significantly change with time, but there was a small overall increase in BFR (374, 379ml/min, $p < 0.05$). This was only significant in the higher flow group.

We significantly reduced dialysate use, without any negative effects on HD clearance. Indeed, we saw a small increase in clearance in the lower flow group. This suggests that our previous practice of fixed DF was wasteful in some patients, but inadequate (limiting achievable clearance) in others. Significant cost and environmental savings will be achieved by reducing dialysate generation, whilst optimising individuals' HD therapy. We will be extending this work into our other HD units as well as our Home HD programme.