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A Single Centre 3 year Experience of Implementing On-line Haemodiafiltration At Home

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Introduction: The practice of haemodiafiltration in-centre is gaining momentum with recent studies indicating that its use is associated with an improvement in both all-cause and cardiovascular mortality. Whilst this is more established in the hospital setting, there is little published data on implementing HDF in the home setting.

Objectives: In June 2013 we started the process of switching our home haemodialysis (HHD) programme from high flux haemodialysis (HFHD) to haemodiafiltration (HHDF), and here we present the logistics and outcomes of implementing such a change in our programme.

Methods: We analysed data for 187 patients trained on our HHD programme between June 2013 to January 2017. This included 3 cohorts: Cohort A (n=28) were the prevalent patients who were switched from HFHD to HDF, Cohort B (n=115) were the new patients starting HHDF therapy and Cohort C (n=44) were the prevalent patients who remained on HFHD. Patient characteristics, outcomes, and blood results were obtained from the renal database within our centre. Data on water quality and therapy costs were also analysed.

Results: At the time of implementation our home haemodialysis programme consisted of 72 patients 65 at home and 7 self-care patients. F5008s™ machines designed for HHDF with 2 Diasafe™ filters was utilised with standard RO and dual carbon cartridges. Endotoxin filters were replaced after every 100 treatments. The patient characteristics for Cohort A were as follows: Mean age was 52yrs, 96% AV Fistula prevalence, 11% Diabetics, average weekly prescribed dialysis therapy 18 hours/week. Beta-2 microglobulin (B_2M mean 29.8 ug/ml) remained unchanged during the course of therapy in this group. Cohort B had a mean age of 50yrs, 83% AV Fistula prevalence, 21% Diabetes and average weekly prescribed HD for those completing training 13.7 hours/week. Training time was no difference in training time between the 2 modalities. No specific adverse events relating to HDF therapy were reported. Water quality was assessed at installation and every 6 months by a renal technician. Water was sampled at the RO unit and after the Diasafe filters and 100% of samples had a microbiological purity and endotoxin assay <0.03EU/ml. Chemical water analysis was also performed. All patients had a smooth transition and to date we have no refusals for changing therapy and no patients have needed to switch back to HFHD. Longitudinal biochemical trends, inflammatory markers and Outcome data on survival, hospitalisation, infection rates and technique failure will be presented on the 3 cohorts and comparative data to Cohort C. Reimbursement for utility bills remained unchanged as the increased requirement for the modality was still accommodated within the 180 litres/hour of therapy hour reimbursed pro rata to all HHD patients.

Conclusion: This study demonstrates successful implementation of on-line haemodiafiltration with extended dialysis regimens in the home setting. Water for HHDF can be provided safely in the community at a standard high enough to produce ultrapure dialysate monitored with the use of a standardised water testing protocol. The increased water requirement of the HHDF modality is relatively small and sustainable. Longer term outcomes for extended HHDF regimes remains unknown as does the optimal modality to use in the HHD setting.

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