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## **Water Quality of Dialysate and Dialysate Solution Using a Hot Water Disinfection Dialysis System for Home Hemodialysis**

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**Case Study :** Introduction: In home hemodialysis (HHD), patients may have difficulty maintaining the cleanliness of the water quality of the RO machine, so in practice, they rely solely on endotoxin retentive filter (ETRF) to maintain water quality. At our hospital, we utilize a hot water disinfection dialysis system for HHD to ensure strict control of water quality. The present study reports on the changes in water quality in two dialysis patients at our hospital. Methods: The HHD setup included a personal RO machine and a hemodialysis machine. Following each dialysis session, the hemodialysis machine underwent chemical disinfection with 300 ppm hypochlorite daily and concurrent acid washing (1% acetic acid) once a week. The piping after the activated carbon filter including RO machines were disinfected with hot water once a week. Fluid samples (RO water, dialysate before and after ETRF) were collected to measure endotoxin level and viable bacterial counts. Results: Patient #1 has been on HHD for 11 years. The endotoxin levels have consistently remained below the detection limit and viable counts were 0 CFU/mL at every sampling point. Patient #2 has been on HHD for 7 years. The endotoxin levels were below detection limit and viable counts were 0 CFU/mL from the beginning of dialysis, but in year 4, endotoxin was detected (0.007 EU/mL) before dialysate ETRF. Therefore, the disinfectant concentration increased from 300 ppm to 600 ppm for one month to manage this situation. Since then, endotoxin levels have remained below the detection limit and viable counts of 0 CFU/mL have been at every sampling point. Conclusion: The quality of dialysis water and dialysate is maintained by using a hot water disinfection system that can disinfect all piping after the activated carbon filter in addition to chemical disinfection.