

Advanced dialysis tech moves into WA homes

September 10 2015, by Carys Garland, Sciencenetwork Wa



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A Lockridge man is the first person in WA to use a breakthrough haemodiafiltration (HDF) machine for kidney dialysis in the comfort of his own home.

HDF is an advanced alternative to haemodialysis (HD) technology, which is currently used for [home dialysis](#) throughout WA, as it

incorporates multiple filters to generate a particular form of ultra-pure [dialysis](#) fluid.

Maintaining the dialysis fluid's quality and purity is key in allowing a kidney failure patient to dialyse at home, as large volumes of dialysis fluid come into contact with their bloodstream during treatment.

Fresenius Medical Care clinical nurse Carol Armstrong says to get the water pure enough for HDF, the water at the patient's home must first meet the standard of drinking water.

"This is then passed through carbon and micron filters and a reverse osmosis unit," Ms Armstrong says.

"It is heated, degassed and mixed with dialysis concentrates to produce dialysis fluid.

"It is then passed through an endotoxin retentive filter and is now ultra-pure dialysis fluid ready to use in HD."

To produce the online fluid used in HDF, this ultra-pure dialysis fluid is then passed through a second endotoxin retentive filter.

Online fluid is made of ultra-pure water combined with dialysate concentrate and bicarbonate, providing a biocompatible dialysate fluid.

HDF uses heat transfer to clear blood toxins

HDF is also more advanced than HD because it uses convection as well as diffusion to clear the toxins from the blood.

This means excess fluid is removed from the blood stream in the dialyser and replaced with ultra-pure online fluid.

Ms Armstrong says about 20L are exchanged in a dialysis session.

"The removal of waste products by convection allows the middle molecules to be removed as well as more efficient removal of the small molecules," she says.

She says previous studies have shown HDF leads to a reduction in all causes of mortality by 30 per cent compared to standard HD.

"It has been shown to protect the heart, stabilise blood pressure and reduce the calcium and phosphate product in the blood."

Fresenius Medical Care patient Barry Cameron says the HDF technology has had a liberating effect on his life.

"It's allowed me to spend more time with my family and friends and allowed me to go out to places whenever I want to," he says.

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