

Water Treatment for Dialysis

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Oct 2008

Water Treatment

- Important because dialysis patients are exposed to water in dialysis in the amount of 6-800 cc/min. This equates to 192 liters per treatment.
- Shortly after dialysis became commonplace, the first cases of poisoning of dialysis patients by water impurities were reported.
- 1968 Aluminum dementia, Denver CO.

Water Treatment

- Dialysate does not need to be sterile but does need to meet rigorous standards.
- Standards set by AAMI (Am Assoc. of Measurement in Industry).
- Must take steps to minimize bacterial contamination.

Water Treatment

- The components of dialysate preparation:
 - Continuous flow circuit
 - Minimal dead space in circuit
 - Ability to decontaminate the circuit.
 - Ability to watch for leaks
 - Proper pressure for dialysis machines to operate.
 - Components to purify the water.
 - Components to mix the dialysate concentrate with the water.

Components to purify the water

- Water softener
- Reverse Osmosis
- Deionizer
- tanks
- Filters
- UV treatment
- Storage with booster pump.

Components to mix the dialysate concentrate with the water

- Dialysis machine has a proportion mixer to suck up dialysate concentrate and mix with the appropriate amount of water.
- Dialysate may be mixed at the machine from jugs.
- Dialysate concentrate may be mixed centrally and carried to the machine by its own plumbing.

Components to mix the Bicarbonate concentrate with the water

- Dialysis machine has a proportion mixer to mix Bicarbonate with the appropriate amount of dialysate and water.
- Bicarbonate may be mixed at the machine from jugs, by use of a BICART cartridge, or
- Bicarb concentrate may be mixed centrally and carried to the machine by its own plumbing.

Power Generator



Dialysate Preparation Room



Water Softener



System Prefilter and booster pump



Deionizers

Note the redundancy to facilitate maintenance while in operation.



Reverse Osmosis Units



Storage tanks



Ultra-filter



Acid concentrate holding tanks



Bicarbonate mixer and holding tank



Union Electric Light and Power Company, St Louis MO.

