WATER TREATMENT FOR HEMODIALYSIS

(Session Outline)

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I. Importance of Treating Water for Use in Dialysis
   A. Discussion of non-patient water exposure vs. hemodialysis patient water exposure.
      1. 500 – 1,000 liters/year vs. 25,000 – 40,000 liters/year
      2. gastro-intestinal filtration vs. non-selective dialyzer semi-permeable membrane.
   B. Identifying chemical contaminants in the water and patient reactions or symptoms associated with these chemicals.
      1. problems that may result in injury or death to the patient
   C. Determining maximum level of chemical contaminants allowed.
      1. AAMI/ANSI Hemodialysis Standard
   D. Discussion of source water (tap water) differences
      1. surface vs. ground water
      2. seasonal variations
      3. contacting water treatment plant

II. Removal of Organic & Inorganic Contaminants
   A. Identify purpose of components within water treatment system.
      1. blending valve, softener, carbon tank(s), particulate filters, RO, storage tanks, UV, sub-micron or UF filters, and piping distribution systems
      2. deionization

III. Factors Influencing Microbial Contamination in Water Systems
   A. Dealing with excessive bacteria and/or endotoxin units in purified water.
      1. disinfecting water treatment systems to minimize bacterial growth and biofilm formation
      2. making sure of effective micro-organism kill within the water system
         a. recognizing the limitations of germicides
      3. selecting a laboratory that understands the requirements for testing various dialysis samples