Critical Care Dialysis System

Below, Matthew Blake, 22, of Georgetown, Pennsylvania is undergoing blood-cleansing dialysis in the den of his home, using the portable REDY®2000 Sorbent Hemodialysis System. The REDY (REcirculating DYalysis) is the latest in a line of dialysis machines developed by Organon Teknika Corporation and predecessor companies over a span of 25 years.

Organon systems employ technology originally developed under NASA contract by Marquardt Corporation, an ancestor company. The Marquardt work in the late 1960s involved one project aimed at purifying and recycling water for long duration space mission and another investigating desalinization of sea water. In the course of this work, Marquardt researchers discovered that the chemical process developed for the project could be applied to removing toxic waste from used dialysis fluid. This discovery sparked a company project to develop a kidney dialysis machine.

The discovery marked the birth of what is known as "sorbent" dialysis, a method of removing urea from human blood by treating a dialysate solution. Sorbent dialysis differs from conventional single pass dialysis in one major respect: in the sorbent system, used dialysate is chemically reprocessed into fresh dialysate and sent back to the dialyzer instead of being flushed down a drain.

This regeneration process leads to a number of advantages: replenishing the small (six liter) supply of dialysate saves the electricity used to pump and heat large volumes of dialysate; makes it easier to alter the composition of the dialysate to meet individual needs; eliminates the need for a continuous water supply and drain; and provides home dialysis patients greater freedom, since the machine need not be confined to a particular room.

The company that started as Marquardt's Astro Division has been through several name evolutions. Marquardt merged with CCI Corporation in the 1968 and in 1972 a subsidiary — CCI Life Systems — took over the dialysis machines and began marketing the first version of the REDY system. In 1978, CCI Life Systems was sold to AKZO N.V. of Arnhem, The Netherlands and Life Systems became Organon Teknika, which markets REDY machines worldwide. ●

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