



Nocturnal, In-Home Dialysis - By Gail Guterl - June 24, 2013

Dialysis has come a long way from its first successful use during World War II, on a device cobbled together from juice cans, sausage casings and an old washing machine. Yet, while the equipment has evolved, typically the setting for artificial replacement for lost kidney function in those with end-stage renal disease (ESRD) has not.

According to the National Institute of Diabetes and Digestive and Kidney Diseases, most people with ESRD receive dialysis in a clinic-the ratio is 10 to 1-tying them to a center at least 3 times a week for 3-4 hours each visit. That often means many of the almost 400,000 ESRD patients in the U.S. receiving some form of dialysis are giving up normal activities such as school, work, time with family and travel.

However, two advances in delivery-nocturnal dialysis and in-home dialysis-are improving care and broadening where and when dialysis is administered as patients wait for a kidney transplant.

"With nocturnal dialysis performed in our clinic a patient can sleep while being dialyzed, giving them 8 hours of treatment 3 times a week, enabling them to clear a lot more waste products from their system," said **Stephanie Hull**, BSN, RN, CNN, regional director of Operations at **Satellite Dialysis, Satellite Health Care**, based in San Jose, CA.

"Home dialysis is our passion, it's what we do," said **Maureen Holland**, RN, CNN, regional director of Operations for **Satellite WellBound, also part of Satellite Health Care** in San Jose. "Patients who have embraced in-home dialysis realize they can enjoy the same options that you or I have. They can work, travel, go to school; they are free to pursue their dreams."

The Therapies

Nocturnal and in-home dialysis have been around since the 1970s, but with better equipment, support and intensive dialysis education programs from home care agencies, these treatment paradigms are gaining wider acceptance. Both are touted as slower processes that are less tiring for patients and remove waste more thoroughly.

Basically there are two ways of dialyzing a patient, by peritoneal dialysis (PD) or hemodialysis (HD).

In PD fluid is introduced through a permanent tube in the abdomen and flushed out either every night while the patient sleeps or via regular exchanges throughout the day.

In HD, a needle is inserted into a blood vessel, then the dialysis machine slowly pumps blood from the body into the dialyzer, where waste products and extra fluid are removed. The filtered blood is then pumped back into the body. This process is usually done in a dialysis clinic or medical facility.

Both HD and PD carry some risk of infection.

Nocturnal

Studies have shown the longer and slower patients are dialyzed the better the results. Hull has seen the advantages first hand.

"With dialysis extending all night long, we see better fluid control, which helps patients get their blood pressure under control," said Hull, where nocturnal dialysis began in its centers in 2009.

"They feel better; they eat better so their albumins and other levels are improved; they aren't so tired after treatment. Often they can even get off their BP medications."

About 160 patients at Satellite Dialysis receive nocturnal dialysis offered at 12 of its 40 locations. Patients bring their own blankets and pillows to take advantage of fully reclining dialysis chairs.

"All TVs are off around 11 p.m.," Hull said. "Experienced, seasoned staff is there all night, monitoring for BP, hypotension and cramping, ensuring needles are not dislodged, etc."



"Our goal at Satellite is to get the treatment that's right for the patient," said Hull of the outpatient dialysis clinics founded 40 years ago. "We get them homebound if that's the best program for them. We are always exploring the options: transplant, peritoneal dialysis, nocturnal. We give them information on all treatment options to let them decide what's best for them."

In-Home

Satellite patients who choose in-home dialysis are trained and monitored at Satellite WellBound, a free-standing home dialysis company. In fact, in 2004 several Satellite WellBound patients participated in clinical trials for a portable home hemodialysis system, which the agency now uses.

"The small cyclor machine weighs about 70 lbs. and only needs an electrical outlet to run; it doesn't need a constant water source like in-patient dialysis systems. If patients want to travel, they can take their own bags of solution with them. You just need a place to drain the fluids which can safely go down a sink, toilet or bathtub," Holland said.

A padded, wheeled carrying case is available to take the machine in a car. A special metal case is required and available for air travel, which must be checked on a plane.

Holland said patients revel in the thought they can go away for the weekend or on vacation and stay in a hotel. "Patients dialyze 4-6 days per week; their schedule is flexible and can be adjusted around their lifestyle as long as they don't take 2 simultaneous days off dialysis," Holland explained. Like Hull, Holland sees patients thrive with this longer, slower dialysis process. "With slow therapy the body adjusts more gradually; patients aren't so drained. They leave therapy and can participate in other activities."

The new sense of freedom can improve their lives as well. "We had one patient who wanted to get her degree as a renal dietitian," Holland remembers. "When she learned of home dialysis she took her little machine to UC Davis and dialyzed in her room. She is now a dietitian and eventually got a transplant."

Another patient lives on a boat in Seattle. He is able to dialyze himself and maintain a busy lifestyle.

Training for In-Home

It helps that patients who choose in-home dialysis are passionate about it, Holland said, because training typically can take anywhere from 17 days to 2-3 months. However, before they even begin training, patients undergo detailed interviews with nurses and social workers that cover psychosocial issues, physical setting, support systems and personal health.

"One patient was very interested in home dialysis but he was starting his own company, had a young family and just could not come in on weekdays for training," Holland said. "Because a WellBound clinical manager was willing to think outside the box, he was trained weekends and evenings."

"Our goal is to help patients be successful; providing an alternative schedule can be an essential component to achieving that goal."

Training to do dialysis at home includes preparing for any contingency.

"Patients learn to set up and use the machine, insert their own needles, recognize medical and technical complications and respond to emergencies," commented Holland, who said less than 2% of WellBound's ESRD patients opt for in-home dialysis at this time. "It is ideal to have a partner who will be able to help you, but we have people on their own who do very well with in-home dialysis."

"The dialysis machine manufacturer has a 24-hour technical support line for patients," she explained. "Additionally, WellBound nurses are available by phone 24/7; patients are seen at our centers monthly and are supported with home visits by nurses."