Technical Advances

Continued from page 11

Impact of the Prospective Payment System (PPS) on Home Hemodialysis

By Allen R. Nissenson

The vast majority of patients with end-stage renal disease (ESRD) undergoing dialysis receive this care through a Medicare entitlement enacted in 1972. Up until 2011, payment for dialysis treatments included one payment for the basic treatment itself, including all of the associated costs, and a separate payment for injectable medications (primarily erythropoietin, vitamin D, and iron) and some laboratory tests. In January 2011 the Prospective Payment System (PPS)—sometimes called “the bundle”—approach to payment was initiated, so-called because the basic payment plus the payment for injectable medications (and some laboratory tests) were bundled together into a single payment. In addition, the provisions of the PPS included withholding 2 percent of the bundled payment, which could be earned back if dialysis facilities met certain quality outcomes. The PPS applied to patients independent of dialysis modality or site of care, so included home hemodialysis (HD), patients, although the quality metric related to dialysis adequacy was not included for such patients who were receiving more than three treatments per week.

When the PPS was implemented there was a measurable decrease in the number of patients selecting peritoneal dialysis (PD) as a dialytic modality. While there are many factors that led to this occurrence, it was clear that total costs of care for PD patients were lower than for in-center hemodialysis (ICHD) patients, and the PPS further incentivized PD since the weekly payment was the same for PD and ICHD, but the costs for PD were lower. A similar increase in growth of HDH has not been seen, however, and the PPS does not favorably reward placement of patients on this form of therapy. It should be noted that the current PPS payment level is not sufficient to pay for the costs of dialysis, thus necessitating cost shifting from patients with other forms of insurance in order to maintain viability of dialysis facilities.

There is currently a lack of granular data on the costs of HDH training, including retraining and “futile” training

dialyzer, a touch-screen patient interface to shorten putting it on and taking it off, alarm interaction, and wireless automatic treatment data transfer. Ultrapure water is produced in real time with Microfluidic Heat Exchange Flash pasteurization of incoming tap water and wide-ranging rates of blood and dialysate flow for treatment flexibility. The device is portable and has an integrated water source. Its projected time to market in the United States is unknown.

Quanta SelfCare is being developed by Quanta, a company based in Warwickshire, England. Its disposable pumping system, unique to this device, allows it to provide a high-performance hemodialysis system that weighs 64 pounds and is portable. The machine is designed for HDH and in-center self-care, with cartridge setup, automated prime and rinseback, and touch-screen patient interface. It can store and transmit treatment data to the clinic in real time or after the treatment. Standard supplies are used for this machine. The patient can travel only with sterile bags. The machine must have a separate water treatment source for home setup. It has no integrated hemopump or automated blood pressure monitor. The goal is to market it first in the United Kingdom in 2015 or 2016.

The wearable artificial kidney, whether using blood access or peritoneal access, has unique problems. In February 2014, the FDA approved the start of the first human clinical trials in the United States for the wearable artificial kidney, designed by Blood Purification Technologies, Inc., based in Beverly Hills, California. The results of this trial will be critical in the advancement of this device in the United States.

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