

Andreas Pierratos, MD

Synopsis of article:

Pierratos A. Daily (quotidian) nocturnal home hemodialysis: Nine years later. *Hemodialysis International* 2004;8:45-50.

This article is a review of the experience and data on daily (quotidian) nocturnal hemodialysis. This method of dialysis uses conventional hemodialysis machines. The patients or family members perform hemodialysis at night during sleep usually for 8 hours, 6 nights a week at home. Therefore, the method has the advantages of home hemodialysis, long hemodialysis, and daily hemodialysis. It provides smooth and slow but very high dose treatment in the convenience of one's home at an otherwise unutilized time. Some centers have elected to monitor remotely the dialysis machines through a telephone or Internet connection. Although home, long, and daily forms of hemodialysis have been utilized for many years, daily nocturnal hemodialysis has been used only for the last 11 years. It started in Toronto, Canada in 1994 and is utilized in many centers in Canada, the U.S., Europe, and Australia by more than 500 patients.

The benefits of the method have been well described: The quality of life of the patients improves significantly with more energy, free diet, better appetite, diminished need to take medications, and more free time. Blood pressure is very well controlled with no or only one medication. The heart size decreases, the cardiac function improves and the blood vessels become healthier. There is diminished or no need for erythropoietic medications. Phosphate control is excellent without taking phosphate binders (which usually are in the form of calcium salts or sevelamer hydrochloride (RenagelTM) while following an unrestricted diet.

The removal of a large molecular weight toxin, beta-2 microglobulin, is four times higher than the conventional, thrice weekly hemodialysis regimen. This greater removal offers potential benefits, while the higher dose of dialysis for small molecules makes it ideal for larger patients. Diet is free and appetite increases, leading to weight gain and nutritional improvement. Sleep apnea, present in as many as 60% of the dialysis patients, is corrected.

The direct cost of the method is only slightly higher than conventional in-center hemodialysis, while the total cost including medications and hospital admissions is lower.

The current dialysis reimbursement policies in most countries have kept the utilization of daily hemodialysis low. Further confirmation of the benefits of the method as well as the benefits of short daily hemodialysis and long intermittent hemodialysis will allow these methods to hopefully improve dialysis outcomes.

Commentary by Todd S. Ing, MD

Dr. Pierratos and his colleagues, pioneers in the novel modality of daily, long, nocturnal hemodialysis, have provided very exciting data pertaining to the benefits of this particular approach. Other centers have also obtained comparable promising results.