

Nightly home hemodialysis: Five and one-half years of experience in Lynchburg, Virginia

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Background: Lynchburg Nephrology Dialysis Incorporated initiated a nightly home hemodialysis (NHHD) program in September 1997. As of April 30, 2003, 40 patients had completed training; 28 patients were at home and 2 patients were in training. The average age of the patients at the initiation of the home-based therapy was 50 years, with a range of 23 to 81 years. There have been 24,239 treatments at home with a total of 84.86 patient-years on NHHD, the longest patient for 66.7 months and the shortest for 1 month.

Methods: Patients dialyzed using the Fresenius 2008H machine, 6 to 10 hr, 5 to 6 nights per week. Treatment parameters included a blood flow rate of 200 to 250 mL/min; a dialysis flow rate of 200 to 300 mL/min; and a standard dialysis solution with 2.0mEq/L potassium, 3.0 to 3.5 mEq/L calcium concentrations, 35 mEq/L HCO₃, and 140 mEq/L sodium. The longitudinal data of each patient in the program for 1, 2, 3, 4, and 5 years were compared to the same patient's pre-NHHD data. There were 25 patients in the program for 1 year, 19 patients for 2 years, 14 patients for 3 years, 6 patients for 4 years, and 4 patients for 5 years.

Results: Statistically significant improvement occurred in all five groups' need for antihypertensive medications and phosphate binders, SF36 scores, calcium/phosphorus product, blood pressure, number of hospital admissions, and number of days of stay in the hospital. The mortality rate was 2.4% deaths per patient-year with a 95% confidence interval of 0.9% to 9.4%.

Conclusions: In a longitudinal study, NHHD showed significant improvements in patient secondary outcomes. The improvement in these secondary outcomes was associated with an improvement in mortality rate.

Commentary by Todd S. Ing, MD

Dr. Lockridge and his colleagues have the longest experience in nightly home hemodialysis in the US. These expert investigators are pioneers in high-intensity hemodialysis in this country and their results are very encouraging and reminiscent of those obtained by Pierratos' group in Toronto, Canada (1).

Reference:

1. Pierratos A, Ouwendyk M, Francoeur R, et al. Nocturnal hemodialysis: Three-year experience. *J Am Soc Nephrol* 1998;9:859-68.