

Abstract:

INTRODUCTION: Despite mounting evidence that increased frequency and duration of hemodialysis (HD) improves outcomes, less than 1% of HD patients worldwide receive nocturnal hemodialysis (NHD). Many perceived barriers exist to providing NHD and increasing its provision.

METHODS: A retrospective analysis of nocturnal therapy using a low-flow dialysate system in 4 European centers for a minimum of 12 months, with data collected on patient demographics, training times, safety features, medications, and biochemical parameters at baseline and at 6 and 12 months.

FINDINGS: Data were collected on 21 patients, with 12-month analysis available for 20 patients. Mean dialysis duration was 28 hours per week, with most dialysis on an alternate night regimen using 50-60 L of dialysate per session. All vascular access types were represented, and low molecular weight heparin was used as a bolus. All biochemical parameters met European standards, with a trend for improvement in standardized Kt/V, phosphate, hemoglobin, and albumin. There was a significant reduction in phosphate binder usage and a reduction in blood pressure medication. Training time was 9.6 sessions for independence at home, with 2 additional sessions to transition to NHD. Additional safety features included an alarmed drip tray under the cyclor and moisture sensors under the venous needle (all patients used dual-cannulation technique). No patient safety events were reported.

DISCUSSION: These data support the use of a low-flow dialysate system for provision of NHD at home. Biochemical parameters were good, medication burden was reduced at 12 months, and all patients received more than double the duration of HD provided in standard in-center units. While patient numbers were small, low-flow dialysis in this cohort was both effective and safe. Use of this alternative HD system could reduce some of the barriers to NHD, increasing the uptake of therapy in Europe, and improving long-term patient outcomes.

Reference:

Gangaram, V., Vilpakka, M., Goffin, E., Weinhandl, E.D., Kubisiak, K.M. and Borman, N. (2019) Nocturnal home hemodialysis with low-flow dialysate: Retrospective analysis of the first European patients. *Hemodialysis International*. December 10th. doi: 10.1111/hdi.12808. (Epub ahead of print).