

IMPROVED FLUID STATUS AND ADEQUATE UREA CLEARANCE WITH FREQUENT HOME HD

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INTRODUCTION

In Europe, a new dialysis system using low dialysate volume and designed for use in patients' homes, the NxStage System One (NSO), was introduced in UK in 2009 and in western countries in 2012. A lot of publications demonstrated the benefits of frequent hemodialysis in various settings. Home is probably a more suitable place to deliver this modality. We assessed markers of fluid status and dialysis adequacy in a cohort of European patients on frequent home hemodialysis (HHD) using NSO.

METHODS

Data were extracted from the updated KIHdNEy (Knowledge to Improve Home Hemodialysis Network in Europe) cohort. Patients underwent HHD for ≥ 4 sessions/week with the NxStage System One at 10 centers with a home dialysis program, in 5 Western Europe countries (Belgium, Finland, France, Italy, Spain, United Kingdom). Ultrafiltration rate (UF), antihypertensive medication count, and weekly standardized Kt/V were assessed at baseline, 6 months, and 12 months.

RESULTS

- The cohort included 219 patients on frequent HHD. Quartiles of age were 41, 50, and 60.5 years, and 64% of patients were male.
- Patients had multiple comorbidities (Charlson score from 2 to 11) and a wide range of body mass index (from 13.3 to 50.8).
- Majority was treated with an arteriovenous fistula using a button hole technic but cohort also included use of central lines or rope ladder technic.
- Median dialysis duration preceding HHD initiation was 1.3 years.
- Mean (standard deviation) treatment times were 164 (43) minutes per session and 14.9 (3.3) hours per week. [Figure 1] 15% of patients had treatment time <12 hours, but 86% of those patients had urine volume ≥ 0.5 L/day.
- Almost all (94%) patients used 15 to 40 liters of dialysate per session.
- Mean UF rate was 7.1 mL/hour/kg at baseline, and declined ($p=0.11$) to 6.7 and 6.8 mL/hour/kg at 6 and 12 months, respectively.
- Mean antihypertensive medication count was 1.4 agents/day at baseline, and declined ($p<0.01$) to 1.1 and 0.9 agents/day at 6 and 12 months. [Figure 2]
- Weekly standardized Kt/V was stable ($p=0.53$), at 2.57, 2.58, and 2.52 at baseline, 6 months, and 12 months, respectively.
- Survival was good after 36 months and the main reason for therapy cessation was transplantation. [Figure 3]

CONCLUSIONS

Frequent HHD led to slightly lower ultrafiltration intensity and less need for antihypertensive medications. Urea clearance was stable, despite low volume of dialysate per session. NSO can deliver adequate dialysis and no clinical criteria which could limit patient selection was observed.

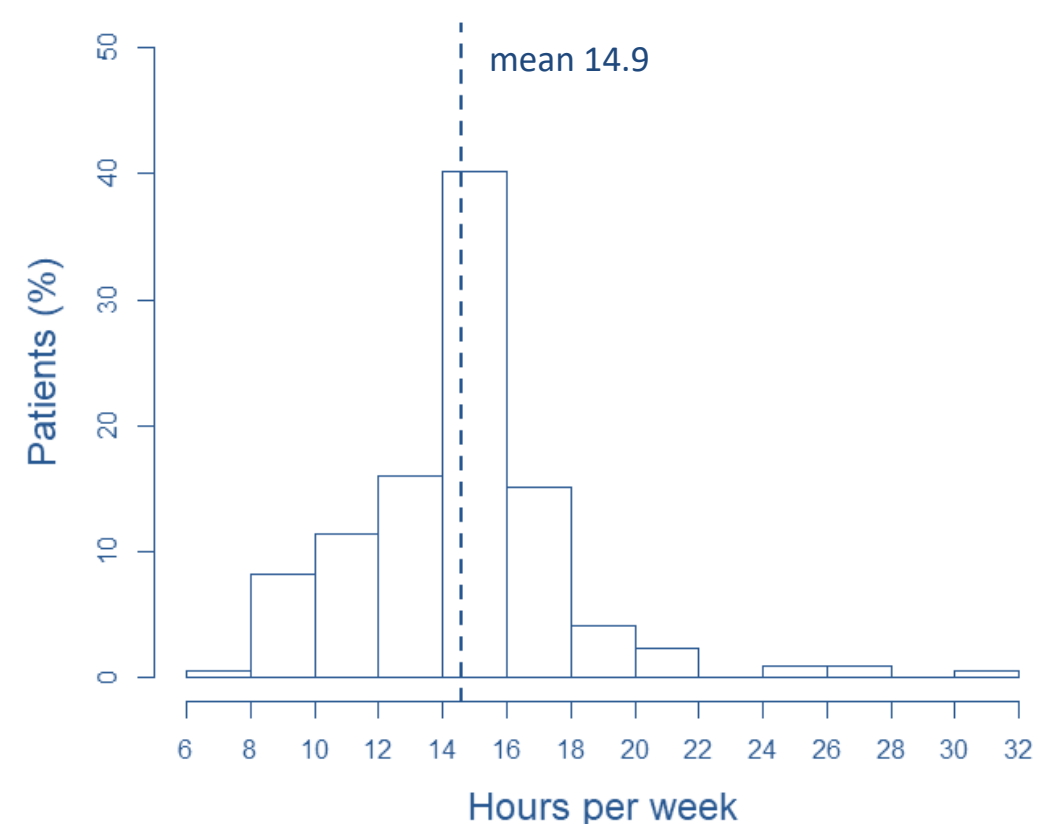


Figure 1. Distribution of cumulative treatment hours per week.

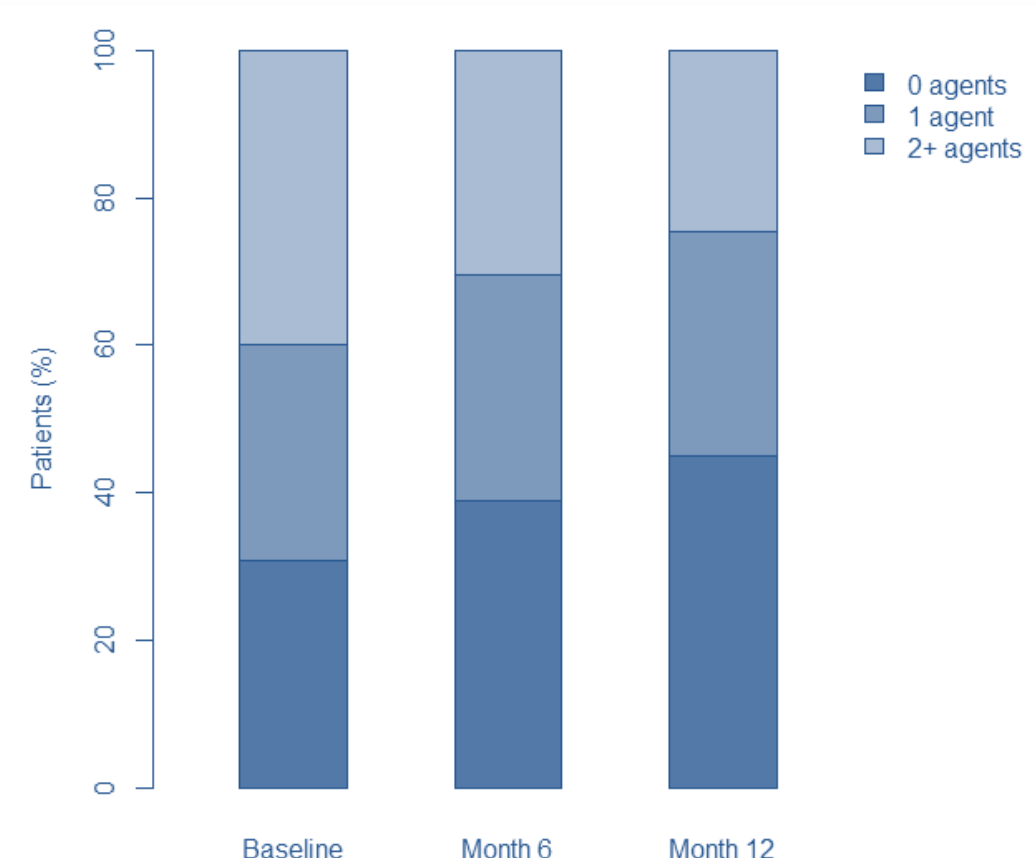


Figure 2. Distribution of antihypertensive agents per day, at baseline, 6 months, and 12 months.

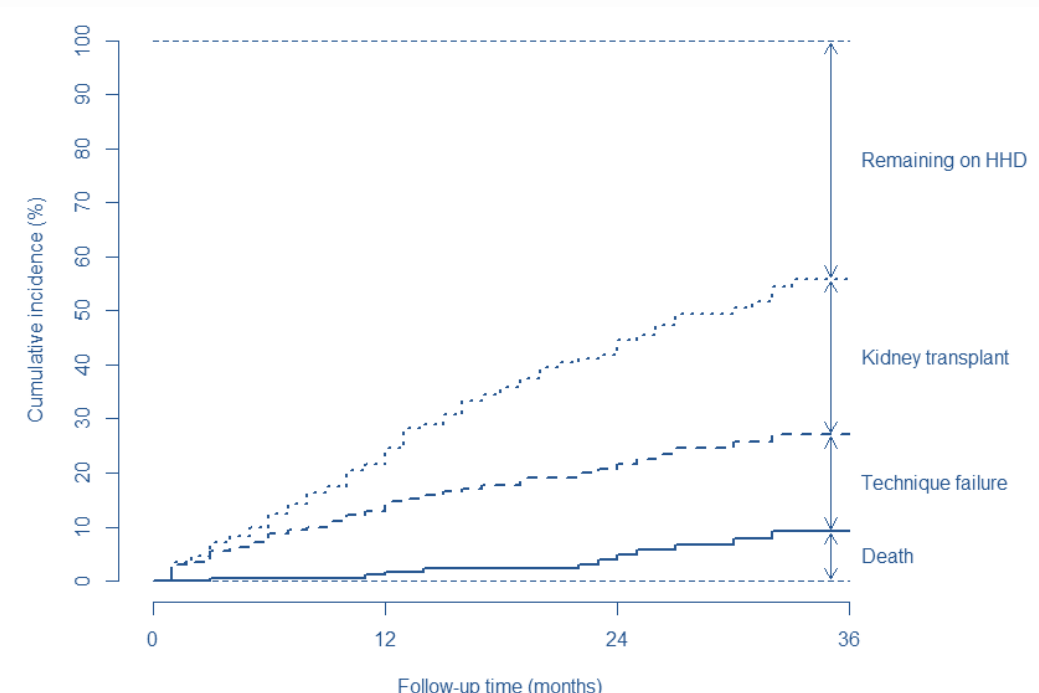


Figure 3. Cumulative incidence of home hemodialysis cessation due to kidney transplant, return to in-centre hemodialysis, and death.