Conversion of Facility Standard Dialysate Sodium to ≤ 138 mEq/L Is Associated With Reduction in Excessive Interdialytic Fluid Gains Without Evidence of Adverse Effect

Jason Zhang; Andrew Lee; Steven M. Brunelli, MD, MSCE; Deborah Benner, MA, RD, CSR; Kathy Lahr, RD; Irina Goykhman, RN, BSN, MBA; David B. Van Wyck, MD; Mahesh Krishnan, MD, MPH, MBA; Allen R. Nissenson, MD
DaVita HealthCare Partners Inc. Denver, CO, USA

Introduction
- Intradialytic sodium administration, including use of dialysate sodium concentrations in excess of 140 mEq/L, has frequently been prescribed in an attempt to prevent or minimize intradialytic hypervolemia (IDH) in hemodialysis (HD) patients.
- Evidence that intradialytic sodium loading enhances thirst and thereby aggravates rather than preventing IDH.
- We reasoned that facilities changing dialysate sodium from a higher to lower concentration would show lower rates of excessive IDWG, high intradialytic UFR, and IDH.

Objective
The objective of this study was to examine the effect of facility-level transition to use of lower dialysate sodium (134-138 mEq/L) on indices of peridialytic fluid balance.

Methods
- We evaluated results from patients treated at 2,130 hemodialysis facilities and observed the proportion of dialytic intervals with IDWG > 5% of body weight, predialysis serum sodium concentration monthly over the period January to August 2014.
- There were no discernible effects of dialysate sodium reduction on target weight, predialysis serum sodium concentration, or mortality.
- As of 30 September 2014, 99.3% of LDO facilities had adopted standard dialysate sodium of 138 mEq/L or lower and 97.9% of LDO patients in these facilities were receiving dialysis with prescribed dialysate sodium of 138 mEq/L or lower.

Results
- By August 2014, 97.6% of all patients treated in participating facilities had prescribed dialysate sodium of ≤ 138 mEq/L.
- Between December 2013 and August 2014:
  - the proportion of dialytic intervals with IDWG > 5% of target weight declined by 18.3%.
  - the proportion of treatments with UFR > 13 mL/hr/kg declined by 17.5%.
  - frequency of episodes of IDH declined by 19.4%.
  - target weight, predialysis serum sodium, and mortality were unchanged.

Conclusions
- Use of standard dialysate sodium in the range 134-138 mEq/L, when coupled with a multifaceted quality improvement program, is effective in reducing excessive IDWG and high UFR rates.
  - Reduction of 18.3% in IDWG and 17.5% in UFR > 13 mL/hr/kg was observed over 8 months following implementation.
  - The favorable results after transition to lower dialysate sodium were achieved with an 18.4% decrease in IDH.
  - There were no discernible effects of dialysate sodium reduction on target weight, predialysis serum sodium concentration, or mortality.

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References

Figure 1: Effects of Sodium Loading
Figure 2: Fluid Balance Indices Following Facility-Level Transition to Use of Dialysate Sodium 134-138 mEq/L

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