



AMERICAN NEPHROLOGY NURSES' ASSOCIATION

ANNA'S 43RD NATIONAL SYMPOSIUM

APRIL 29-MAY 2, 2012

WALT DISNEY WORLD DOLPHIN, ORLANDO, FL

**Sodium Dialysate (Na_d) and Interdialytic Weight Gain —
Results of Three Quality Improvement Projects**

Sheila Doss-McQuitty, BSN CNN CCRA & Brigitte Schiller, MD, Satellite Healthcare, Inc.

Problem: A higher sodium gradient (Na_d - predialysis plasma Na⁺) during hemodialysis (HD) has been associated with sodium loading. We hypothesized that a higher Na⁺ gradient is associated with increases in interdialytic weight gain (IDWG), blood pressure (BP) and thirst. Results from three quality improvement projects to further understand the role Na_d might play in achieving euvolemia are presented.

Methods: 1) A cross-sectional study on 1084 clinically stable patients on HD analyzing the Na⁺ prescription and clinical associations with Na⁺ gradient; 2) A pre-post intervention analysis of the safety and effects of decreasing Na_d concentration on IDWG and BP in patients undergoing 3x/wk in-center nocturnal HD (INHD); 3) A case series of 13 patients on 3x/wk in-center HD with an individualized Na_d reduction.

Results: 1) Na_d prescription varied widely across dialysis facilities, ranging from 136 to 149 mEq/L, with a median of 140 mEq/L. The mean pre-HD plasma Na⁺ was 136.7 ± 2.9 mEq/L, resulting in 83% being dialyzed against a positive Na⁺ gradient with a mean Na⁺ gradient of 4.6 ± 4.4 mEq/L. 2) When reducing Na_d prescription to a gradient of ±2 a decrease in IDWG, IDWG%, and predialysis systolic BP was achieved. 3) Pre-HD plasma Na⁺ ranged from 132-141 mEq/L. Patients on standard Na_d compared to individualized Na_d prescription had decreased IDWG% (3.4 ± 1.6% vs. 2.5 ± 1.0%; p=0.003) with no change in pre- or post-HD BP.

Conclusions: Na⁺ gradient is associated with statistically significant and clinically meaningful differences in IDWG in stable patients on HD (1mEq/L increase in the Na gradient = 70 g increase in IDWG, p<0.0001). Decreasing Na_d concentrations in patients undergoing 3X/wk INHD resulted in a clinical and statistically significant decrease in IDWG, IDWG%, post-dialysis plasma Na⁺ concentration, and pre-dialysis systolic BP without increasing adverse events. Individualized reduction of Na_d therefore likely represents an opportunity to benefit efforts in achieving dry weight in patients undergoing HD.

Abstract selected for presentation at ANNA's 43rd National Symposium, Orlando, FL, 2012