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Variation in Hemodialysis Patient Body Composition as a Result of Recommended Dietary Sodium Intake Restriction

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Monitoring adherence to dietary sodium restriction and the resulting fluid status are tenets of end stage renal disease (ESRD) management. Historically, clinicians have struggled with accuracy and estimation of fluid status, referred to as dry weight or normotension. Measurements can be imprecise, sensitive to human error; making subsequent clinical estimation challenging and unreliable. Furthermore, physiologic measurements are often invasive and impractical. The purpose of this study, therefore, was to assess whether Bioimpedance spectroscopy (BIS) is a practical alternative for monitoring fluid status, and proxy for dietary sodium restriction adherence in hemodialysis (HD). A sample of 42 HD patients were randomized into one of three sodium groups and admitted to the research center for 5 days, and 4 nights. BIS was measured before and after HD and twice daily on non-HD days. Descriptive statistics were computed, along with a set of three regression analyses, using a set of covariates. Results of regression models showed that there were no statistically significant differences among sodium intake groups for total body water, intracellular fluid, or extracellular fluid. Participants with diabetes had significantly higher levels of extracellular fluid as compared to those with hypertension as the self-reported etiology of ESRD. Additional research is needed to extrapolate the practical application of BIS, and to understand the unique impact of ESRD etiology on body fluid composition.

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