

## **ANALYSIS OF POTASSIUM PROFILES AMONG HEMODIALYSIS (HD) PATIENTS**

John Robertson<sup>1</sup>, Debbie Benner<sup>1</sup>, Ronald Levine<sup>1</sup>

<sup>1</sup>DaVita, Inc., El Segundo, CA, USA

Hyperkalemia is considered a risk factor for hemodialysis (HD) patients. This study was designed to determine (1) the serum potassium distributions among HD patients and (2) the relationship between differing levels/durations of hyperkalemia and mortality. Included were all DaVita patients >18 years old receiving HD treatments between January and December 2007. The Full Cohort was all qualifying patients in the dataset at any time during the 1-year observation period. The Tracking Cohort included qualifying patients who survived from January to June with mortality being assessed from July to December, 2007. While over 70% of HD patients were found to have normal levels [3.5 to 5.0 mEq/l] of potassium in periods of at least 6 months or more in the observation year, almost ¼ of the patients (23%) had levels of hyperkalemia (>5.5 mEq/l) over a period of time (> 3 months) that could have significant negative consequences on mortality. Of note was that hyperkalemia was strongly associated with negative clinical outcomes (mortality); and this mortality was more strongly related to the level of hyperkalemia than to the duration of hyperkalemia in HD patients after the period of hyperkalemia exceeds 2 months. Among patients who are hyperkalemic for 1-2 months, there was a 7.6% increase in mortality at the highest hyperkalemia level (6.5 mEq/l), but this was not significantly different from normokalemic patients. For those who were hyperkalemic for 3-6 months, a linear rise in mortality was seen as hyperkalemia levels rose; most increases were different from the mortality rate of normokalemic patients (6.5% vs. 5.91%,  $p \leq 0.05$ ). These findings imply that high levels of potassium, even for short periods of time, are associated with significantly negative outcomes. The dramatic effect of heightened serum potassium on mortality rates should be further examined to determine marker or causal relationship. This study was not designed to address this issue. Assessment of other factors, population demographics, and interventions can have a significant impact on this important outcome discovery.