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DIALYSIS. PERITONEAL DIALYSIS - 1

FP555 SERUM SODIUM AND MORTALITY IN A US PERITONEAL DIALYSIS COHORT

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Introduction and Aims: Hyponatremia is common in end-stage renal disease, and has been linked with higher death risk in hemodialysis patients. There have been comparatively fewer studies of the association of serum sodium with mortality in peritoneal dialysis (PD) patients, which have shown conflicting findings. We thus sought to re-examine the association between serum sodium and mortality in PD patients while accounting for changes in sodium levels over time (i.e., time-dependent sodium levels), and hypothesized that hyponatremia is associated with higher death risk in this context.
Methods: Among 4687 adult incident PD patients receiving care from a large US dialysis organization from 2007-2011 who underwent ≥1 sodium measurement within the first 91-days, we examined the relationship between sodium level with all-cause mortality. The association between time-dependent sodium with mortality was determined using time-dependent Cox models with 3 levels of adjustment: Unadjusted, case-mix adjusted (incrementally adjusted for case-mix covariates including comorbidities such as heart failure), and case-mix+laboratory adjusted (incrementally adjusted for laboratory tests, including nutritional markers and residual kidney function). We also examined whether the association between sodium (dichotomized as <140 vs. ≥140mEq/L, defined as low vs. high sodium, respectively) and mortality was modified by diabetic status; use of automated peritoneal dialysis (APD) in the first 91-days; and peritoneal equilibration test (PET) characteristics, including the dialysate-to-plasma creatinine ratio (D/P Cr; categorized as <0.55, 0.55-<0.80, and ≥0.80) and 4-hour ultrafiltration (UF) volume (categorized as 250-500, and >500ml).
Results: In unadjusted and case-mix adjusted analyses, sodium levels <140mEq/L were incrementally associated with higher mortality (Figure). In case-mix+laboratory adjusted analyses, sodium levels in the hyponatremia range (<136mEq/L) were associated with mortality: adjusted HRs (aHRs) (95%CI) 1.31 (1.01-1.85) and 1.61 (1.17-2.22) for sodium 134-<136 and <134mEq/L, respectively. In case-mix adjusted analyses, there was a consistent association between between low sodium and higher mortality risk across subgroups of diabetes, initial use of APD, D/P Cr, and 4-hour UF volume from PET.
Conclusions: Consistent with the HD population, hyponatremia is associated with higher death risk in PD patients, which was robust across clinically relevant subgroups of diabetes, APD status, peritoneal membrane transport function, and UF capacity. Further studies are needed to explore underlying mechanisms, and to determine if correction of hyponatremia improves outcomes in this population.