Title
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Change in Parathyroid Hormone and Mortality in Incident Hemodialysis Patients

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Introduction and Aims: Fluctuations in serum intact parathyroid hormone (iPTH) level are commonly observed in maintenance hemodialysis (MHD) patients. However, it is unknown as to whether a rise or decline in serum iPTH has an impact upon survival in this population. We hypothesized that, in patients with elevated baseline iPTH levels, a rise in serum iPTH is associated with an increased mortality risk.

Methods: Among 96,459 incident MHD patients receiving care from a large United States dialysis organization from Jan 2007-Dec 2011, we examined changes in serum iPTH levels measured during their baseline (Q1) and subsequent quarters (Q2), which were defined as unchanged (Δ-50 to +50 pg/ml), decreased (decline greater than 50 pg/ml), and increased iPTH (rise greater than 50 pg/ml). We examined the association between change in iPTH across 4 strata of baseline iPTH (<150, 150-<300, 300-<600 and ≥600 pg/ml) using multivariable Cox models adjusted for case-mix and malnutrition and inflammation complex (MICS) covariates.

Results: The mean±SD age of the study cohort was 63±15 years, among whom 43% were female, 32% were African-American, and 60% were diabetic. In case-mix+MICS adjusted models, an increased iPTH was associated with higher mortality risk among patients with a baseline iPTH ≥300-<600 and ≥600 pg/ml (reference group: unchanged iPTH with baseline iPTH 150-<300 pg/ml).

Conclusions: These findings suggest that a rise in iPTH among patients with baseline levels above the target of 150-<300 pg/ml is associated with higher mortality risk. Further studies are needed to determine if lowering iPTH to the 150-<300 pg/ml range improves outcomes in these patients.