Background / Goal

- High circulating level of parathyroid hormone (PTH) is associated with elevated mortality rates.
- In prevalent patients (vintage > 1 year), Japanese patients were most likely to maintain a steady (+/- 5% per month) PTH (47%), and least likely to experience a PTH increase (Fig 1a).
- After adjustment for confounders, high mean PTH levels over the 9 month run-in period were associated with elevated mortality rates (Fig 2c).
- PTH levels were much lower in Japan than in Europe/ANZ and North America across dialysis vintage categories, even among incident (<90 days) patients (Fig 1c).

Methods

- Sample: HD patients with ≥3 PTH measurements over their first 9 months after study enrollment in the DOPPS phase 4-5 (2008-2015) in Japan (N=2027), North America (N=18123), and Europe / Australia / New Zealand (Eur/ANZ; N=5974).
- Exposures: slope change (per month) over the 9-month run-in period, calculated from within-patient regression models of logPTH.
- PTH mean squared error (MSE) from the above within-patient regression model.
- PTH model: calculated as the within-patient geometric mean (exp(mean/logPTH)) of all measurements over the 9 month run-in period.

Analyses

- Descriptive: exposures summarized using adjusted Cox regression with follow-up starting after the 9 month run-in period.
- Model: All-cause mortality modeled using adjusted Cox regression with follow-up starting after the 9 month run-in period.

Results

- Table 1: Patient characteristics, by region.
- Figure 1a: Within patient PTH slope, by region and vintage (% of patients).
- Figure 1b: Within patient PTH MISE, by region and vintage (% of patients).
- Figure 1c: Within patient PTH mean, by region and vintage (% of patients).
- Figure 2a: PTH slope and mortality.
- Figure 2b: PTH MISE and mortality.
- Figure 2c: PTH mean and mortality.

Summary / Conclusions

- PTH levels were much lower in Japan than in Europe/ANZ and North America across dialysis vintage categories, even among incident (<90 days) patients (Fig 1c).
- PTH levels increased with dialysis vintage in Europe/ANZ and North America, but not in Japan, where mean PTH levels declined after the first 90 days on dialysis (Fig 1c).
- In patients with vintage <90 days, PTH was initially likely to decline >5% per month over the next 9 months in Japan (49% of patients) than in other regions (Fig 1a).
- In prevalent patients (vintage >1 year), Japanese patients were most likely to maintain a steady (<+5% per month) PTH (47%), and least likely to experience a PTH increase (Fig 1a).
- After adjustment for confounders, high mean PTH levels over the 9 month run-in period were associated with elevated mortality rates (Fig 2c).
- Neither PTH slope or PTH MISE over a 9 month run-in period was strongly associated with subsequent mortality over a median 13.5 Qr (5.9-22.9) month follow-up period (Fig 2a-b).
- PTH levels were more stable by a table of statistic, within incident PTH levels in 9 months, is better in Japan, others, slower and more incident and prevalent HD patients; we were however not able to demonstrate a survival benefit for this measure of PTH control, and thus further study is needed to investigate whether better PTH control contributes to longer survival for Japanese HD patients.