Table S1

Patient and facility characteristics in US HD facilities that switched to Etelcalcetide-first vs. remained Cinacalcet-first

**A. Facility characteristics in US HD facilities that switched to Etelcalcetide-first vs. remained Cinacalcet-first**

| | **Remain Cinacalcet-first** | | **Switch to Etelcalcetide-first** | |
|---|---|---|---|---|
| **Characteristics** | **Period 1** | **Period 2** | **Period 1** | **Period 2** |
| N facilities | 34 | | 32 | |
| N patients | 1670 | 2178 | 1924 | 1847 |
| N patients using calcimimetics | 536 | 673 | 612 | 793 |
| DO size (% LDO/MDO vs SDO/Ind)* | 79% | | 19% | |
| Facility type (% hospital-based)* | 9% | | 31% | |
| Facility location (% rural)* | 24% | | 6% | |
| Facility size (N patients) | 71 ± 36 | 74 ± 35 | 70 ± 34 | 67 ± 31 |
| Facility % Black race | 38 ± 32 | 39 ± 33 | 30 ± 31 | 30 ± 31 |
| Facility % calcimimetic use | 29 ± 9 | 27 ± 10 | 32 ± 16 | 41 ± 18 |
| Facility % vitamin D use | 81 ± 9 | 79 ± 11 | 67 ± 15 | 65 ± 16 |
| Facility % PB (calcium-based) use | 55 ± 25 | 52 ± 29 | 50 ± 22 | 54 ± 23 |
| Facility % PB (non-cal-based) use | 56 ± 13 | 56 ± 14 | 53 ± 17 | 53 ± 22 |
| Facility mean dialysate calcium (mEq/L) | 2.4 ± 0.1 | 2.5 ± 0.1 | 2.5 ± 0.1 | 2.6 ± 0.1 |

Mean ± SD, median [IQR], or % shown; DO=dialysis organization, PB=phosphate binder; LDO/MDO=large/medium DOs with 10+ affiliated HD units; SDO=small DOs (<10 affiliated units); Ind=independent HD units.

**B. Patient characteristics in US HD facilities that switched to Etelcalcetide-first vs. remained Cinacalcet-first**

| | **Calcimimetic-using patients only** | | | |
|---|---|---|---|---|
| | **Remain Cinacalcet-first** | | **Switch to Etelcalcetide-first** | |
| **Characteristics** | **Period 1** | **Period 2** | **Period 1** | **Period 2** |
| N facilities | 34 | | 32 | |
| N patients | 536 | 673 | 612 | 793 |
| **Demographics** | | | | |
| Age (y) | 57 ± 14 | 58 ± 14 | 61 ± 14 | 63 ± 14 |
| Sex (% male) | 54% | 56% | 54% | 55% |
| Race (% Black) | 46% | 51% | 41% | 38% |
| Dialysis vintage (y) | 3.8 [1.6,6.7] | 4.5 [2.4,7.5] | 3.8 [1.6,6.4] | 3.7 [1.9,7.3] |
| Body mass index (kg/m$^2$) | 30.2 ± 7.8 | 29.8 ± 7.7 | 30.6 ± 8.0 | 30.5 ± 7.8 |
| **Comorbidity history (%)** | | | | |
| Coronary artery disease | 23% | 25% | 18% | 23% |
| Cerebrovascular disease | 8% | 7% | 8% | 10% |
| Heart failure | 23% | 17% | 22% | 25% |
| Peripheral vascular disease | 18% | 14% | 12% | 12% |
| Hypertension | 86% | 89% | 73% | 81% |
| Other cardiovascular disease | 18% | 14% | 19% | 26% |
| Cancer (non-skin) | 5% | 5% | 4% | 5% |
| Diabetes | 62% | 64% | 57% | 62% |
| Gastrointestinal bleeding | 8% | 6% | 6% | 8% |
| Lung disease | 7% | 5% | 8% | 8% |
| Neurologic disease | 11% | 9% | 4% | 4% |
| Psychiatric disorder | 29% | 30% | 26% | 28% |
| Recurrent cellulitis, gangrene | 11% | 10% | 4% | 6% |
| **Markers of nutrition & inflammation** | | | | |

| | | | | |
|---|---|---|---|---|
| Serum albumin (g/dL) | 3.8 ± 0.3 | 3.9 ± 0.3 | 3.8 ± 0.3 | 3.8 ± 0.3 |
| Hemoglobin (g/dL) | 10.9 ± 1.0 | 10.8 ± 1.0 | 10.6 ± 1.0 | 10.7 ± 1.1 |
| Serum potassium (mEq/L) | 4.8 ± 0.5 | 4.9 ± 0.5 | 4.8 ± 0.5 | 4.7 ± 0.5 |
| **Dialysis treatments** | | | | |
| Catheter use (%) | 8% | 10% | 19% | 14% |

Mean ± SD, median [IQR], or % shown

Table S2

MBD marker outcomes in Etelcalcetide-first vs. Cinacalcet-first US HD facilities: Approach 1 results by level of adjustment

| | **Model 1** | | **Model 2** | | **Model 3** | | **Model 4** | |
|---|---|---|---|---|---|---|---|---|
| | **Estimate (95% CI)** | **p-val** | **Estimate (95% CI)** | **p-val** | **Estimate (95% CI)** | **p-val** | **Estimate (95% CI)** | **p-val** |
| **Continuous outcomes** | | | | | | | | |
| PTH (pg/mL) | -237 (-301, -172) | <0.001 | -140 (-220, -57) | <0.001 | -115 (-196, -34) | 0.005 | -119 (-221, -17) | 0.02 |
| Serum Ca (mg/dL) | -0.16 (-0.26, -0.05) | 0.004 | -0.06 (-0.19, 0.07) | 0.36 | -0.12 (-0.25, 0.01) | 0.07 | -0.04 (-0.19, 0.12) | 0.62 |
| Serum P (mg/dL) | -0.29 (-0.46, -0.11) | 0.001 | -0.33 (-0.56, -0.10) | 0.01 | -0.18 (-0.40, 0.04) | 0.11 | -0.02 (-0.29, 0.26) | 0.89 |
| **Binary outcomes** | | | | | | | | |
| PTH >600 pg/mL | -23.2% (-29.5, -16.9) | <0.001 | -13.2% (-21.1, -5.2) | 0.001 | -11.4% (-19.3, -3.5) | 0.005 | -10.3% (-20.4, -0.3) | 0.04 |
| Ca <8.4 mg/dL | 6.5% (0.4, 12.6) | 0.04 | 1.8% (-6.1, 9.6) | 0.66 | 5.0% (-3.0, 13.0) | 0.22 | -0.7% (-10.5, 9.2) | 0.89 |
| P >5.5 mg/dL | -7.4% (-12.5, -2.3) | 0.004 | -5.9% (-12.9, 1.1) | 0.10 | -1.1% (-8.0, 5.8) | 0.76 | 4.4% (-4.2, 13.0) | 0.31 |

Adjusted mean differences (95% CI) shown with progressive covariate adjustment; Continuous outcomes show mean difference in outcome labs (Etelcalcetide-first minus Cinacalcet-first); Binary outcomes show prevalence (%) difference in outcome labs being out of target (Etelcalcetide-first minus Cinacalcet-first). Linear mixed models with a random facility intercept were fit combining all facilities (Etelcalcetide-first and Cinacalcet-first) to estimate the mean difference. For the binary outcomes, these linear models are so-called "linear probability models". Progressive fixed effect adjustments were as follows:

Model 1: unadjusted

Model 2: Model 1 + facility-level characteristics (dialysis organization size, facility size, facility % Black race, hospital-based, facility % total calcimimetic use)

Model 3 (Primary analysis): Model 2 + patient-level case-mix (age, sex, Black race, dialysis vintage, BMI, serum albumin, hemoglobin, serum potassium, 13 summary comorbidities, catheter use)

Model 4 (Possible mediators): Model 3 + facility-level MBD treatments (facility % vitamin D use, facility % phosphate binder [calcium-based] use, facility % phosphate binder [non-calcium-based] use, facility mean dialysate calcium)

Table S3

MBD marker outcomes in Etelcalcetide-first vs. Cinacalcet-first US HD facilities: Approach 1 results stratified by dialysis organization size

| | Small and independent dialysis organizations | | | | Large and medium dialysis organizations | | | |
|---|---|---|---|---|---|---|---|---|
| | **Etelcalcetide-first HD facilities** | **Cinacalcet-first HD facilities** | **Adjusted difference (95% CI)** | **p-value** | **Etelcalcetide-first HD facilities** | **Cinacalcet-first HD facilities** | **Adjusted difference (95% CI)** | **p-value** |
| **N facilities** | 38 | 23 | -- | -- | 7 | 44 | -- | -- |
| **N calcimimetic users** | 838 | 266 | -- | -- | 131 | 921 | -- | -- |
| **Continuous outcomes** | | | | | | | | |
| PTH (pg/mL) | 462 ± 351 | 684 ± 588 | -142 (-266, -17) | 0.03 | 589 ± 432 | 725 ± 557 | -121 (-250, 8) | 0.07 |
| Serum Ca (mg/dL) | 8.9 ± 0.6 | 9.2 ± 0.7 | -0.16 (-0.36, 0.04) | 0.12 | 9.0 ± 0.7 | 9.0 ± 0.5 | -0.05 (-0.21, 0.10) | 0.52 |
| Serum P (mg/dL) | 5.5 ± 1.4 | 5.9 ± 1.6 | -0.43 (-0.72, -0.14) | 0.004 | 5.8 ± 1.4 | 5.7 ± 1.5 | 0.09 (-0.27, 0.45) | 0.63 |
| **Binary outcomes** | | | | | | | | |
| PTH >600 pg/mL | 19% | 42% | -15.0% (-26.4, -3.5) | 0.01 | 32% | 44% | -11.3% (-23.8, 1.2) | 0.08 |
| Ca <8.4 mg/dL | 21% | 15% | 5.0% (-9.4, 16.8) | 0.58 | 17% | 13% | 7.2% (-1.6, 16.1) | 0.11 |
| P >5.5 mg/dL | 44% | 56% | -9.1% (-18.5, 0.2) | 0.06 | 55% | 52% | 6.2% (-5.1, 17.6) | 0.28 |

Crude mean ± std dev and prevalence (%) shown; Linear mixed models with random facility intercept adjusted for HD facility characteristics (dialysis organization size, facility size, facility % Black race, hospital-based, facility % total calcimimetic use) and patient characteristics (age, sex, Black race, dialysis vintage, BMI, serum albumin, hemoglobin, serum potassium, 13 summary comorbidities, catheter use). PTH=parathyroid hormone; Ca=calcium; P=phosphorus.

Table S4

MBD marker outcomes in US HD facilities that switched to Etelcalcetide-first vs. remained Cinacalcet-first: Approach 2 results by level of adjustment

| | **Model 1** | | **Model 2** | | **Model 3** | | **Model 4** | |
|---|---|---|---|---|---|---|---|---|
| | **Estimate (95% CI)** | **p-val** | **Estimate (95% CI)** | **p-val** | **Estimate (95% CI)** | **p-val** | **Estimate (95% CI)** | **p-val** |
| **Continuous outcomes** | | | | | | | | |
| PTH (pg/mL) | -243 (-318, -169) | <0.001 | -184 (-265, -102) | <0.001 | -169 (-249, -90) | <0.001 | -178 (-259, -96) | <0.001 |
| Serum Ca (mg/dL) | -0.22 (-0.28,-0.16) | <0.001 | -0.12 (-0.20,-0.05) | 0.17 | -0.10 (-0.20, -0.01) | 0.04 | -0.14 (-0.22,-0.06) | 0.34 |
| Serum P (mg/dL) | -0.07 (-0.28, 0.15) | 0.55 | -0.04 (-0.27, 0.20) | 0.76 | 0.04 (-0.17, 0.25) | 0.71 | 0.07 (-0.15, 0.29) | 0.54 |
| **Binary outcomes** | | | | | | | | |
| PTH >600 pg/mL | -22.3% (-29.5, -15.2) | <0.001 | -15.5% (-23.2, -7.8) | <0.001 | -14.4% (-22.0, -6.8) | <0.001 | -14.5% (-22.4, -6.7) | <0.001 |
| Ca <8.4 mg/dL | 6.1% (0.7, 11.4) | 0.03 | 4.1% (-1.7, 10.0) | 0.16 | 5.5% (-0.2, 11.3) | 0.06 | 3.8% (-2.1, 9.8) | 0.21 |
| P >5.5 mg/dL | -6.0% (-13.8, 1.8) | 0.13 | -4.2% (-12.3, 4.0) | 0.32 | -1.9% (-9.6, 5.8) | 0.62 | -1.5% (-9.4, 6.4) | 0.70 |

Difference-in-differences (95% CI) shown with progressive covariate adjustment; Continuous outcomes show mean difference in outcome labs by period (after minus before); Binary outcomes show prevalence (%) difference in outcome labs being out of target by period (after minus before). Linear mixed models with a random facility intercept were fit combining all facilities (Etelcalcetide-first and Cinacalcet-first) to estimate the interaction effect between period and facility calcimimetic preference. For the binary outcomes, these linear models are so-called "linear probability models". Progressive fixed effect adjustments were as follows:

Model 1: Period (when estimating the period effect separately by facility preference) OR period, facility preference, and their interaction

Model 2: Model 1 + facility-level characteristics (dialysis organization size, facility size, facility % Black race, hospital-based, facility % total calcimimetic use)

Model 3 (Primary analysis): Model 2 + patient-level case-mix (age, sex, Black race, dialysis vintage, BMI, serum albumin, hemoglobin, serum potassium, 13 summary comorbidities, catheter use)

Model 4 (Possible mediators): Model 3 + facility-level MBD treatments (facility % vitamin D use, facility % phosphate binder [calcium-based] use, facility % phosphate binder [non-calcium-based] use, facility mean dialysate calcium)