Appendix H. Table 2. Followup urine biochemical measures for thiazide trials

| **Study** | **Treatment Groups, Urine Collection Method** | **Calcium,**  **Oxalate,**  **Ca-Ox Product,**  **Ca-Ox Supersaturation** | **Uric Acid, Uric-A Supersaturation** | **Phosphate, Ca-P Supersaturation** | **Citrate, Sodium, Magnesium** | **Potassium (K), Volume, pH** |
| --- | --- | --- | --- | --- | --- | --- |
| Fernandez-Rodriguez, 20069 | A. Hydrochlorothiazide 50 mg/d (n=50)  B. Potassium citrate 20 mEq/d + hydrochlorothiazide 50 mg/d + (n=50)  C. No treatment (n= 50)  Urine collection method not specified  Study reported any data on participant compliance/adherence: No | CALCIUM  Baseline  Mean (SD): NR  % hyperCa:  A – 42%  B – 28%  C – 34%  F/u Time 1: 12 mo.  Mean (SD): NR  % hyperCa:  A – 16%  B – 4%  C – 26%  OXALATE  Baseline  Mean (SD): NR  % hyperOx:  A – NR  B – 2%  C – 2% | URIC ACID  Baseline  Mean (SD): NR  % hyperUA:  A – 2%  B – 6%  C – 4%  F/u Time 1: 12 mo.  Mean (SD): NR  % hyperUA:  A – NR  B – 16%  C – 2%  URIC-A SUPERSAT  Baseline  Mean (SD): NR  F/u Time 1: mo.  Mean (SD): NR | PHOSPHATE  Baseline  N  Mean (SD): NR  % hyperP:  F/u Time 1: mo.  N  Mean (SD): NR  % hyperP:  CA-P SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | CITRATE  Baseline  Mean (SD): NR  % hypoCit:  A – 14%  B – 16%  C – 14%  F/u Time 1: 12 mo.  Mean (SD): NR  % hypoCit:  A – 22%  B – 16%  C – 14%  SODIUM  Baseline  N  Mean (SD): NR  % hyperNa: NR  F/u Time 1: mo.  N | POTASSIUM  Baseline  N  Mean (SD): NR  % hypoK: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hypoK: NR  VOLUME  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR  pH  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N Mean (SD): NR |

| Appendix H. Table 2. Followup urine biochemical measures for thiazide trials (continued) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Treatment Groups, Urine Collection Method** | **Calcium,**  **Oxalate,**  **Ca-Ox Product,**  **Ca-Ox Supersaturation** | **Uric Acid, Uric-A Supersaturation** | **Phosphate, Ca-P Supersaturation** | **Citrate, Sodium, Magnesium** | **Potassium (K), Volume, pH** |
|  |  | F/u Time 1:12 mo.  Mean (SD): NR  % hyperOx:  A – NR  B – 2%  C – 4%  CA-OX PRODUCT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR  CA-OX SUPERSAT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR |  |  | Mean (SD): NR  % hypoMg: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hypoMg: NR |  |
| Borghi, 199311 | A. Indapamide 2.5 mg/d (n=25).  B. Allopurinol 300 mg/d + Indapamide 2.5 mg/d (n=25).  C. Control (diet/increased fluid treatment) (n=25)  24 hour collection  Study reported any data on participant compliance/adherence: No | CALCIUM  Baseline  Mean mg/24 hr(SD):  A (n=19) 387 (121);  B (n=24) 410 (154);  C (n=21) 381 (156)  % hyperCa: NR  F/u Time 1: 6 mo.  Mean mg/24 hr(SD):  A (n=19) 237 (96) [p<0.001];  B (n=24) 231 (115) [p<0.001];  C (n=21) 284 (99) [p<0.01]  % hyperCa: NR  OXALATE  Baseline  Mean mg/24 hr(SD):  A (n=19) 29 (13);  B (n=24) 33 (15);  C (n=21) 25 (8)  % hyperOx: NR  F/u Time 1: 6 mo.  Mean mg/24 hr(SD):  A (n=19) 27 (14);  B (n=24) 28 (11);  C (n=21) 24 (13)  % hyperOx: NR  CA-OX PRODUCT  Baseline  Mean (SD): NR  Time 1: mo.  Mean (SD): NR  CA-OX SUPERSAT  Baseline  Mean (SD): NR  Time 1: mo.  Mean (SD): NR | URIC ACID  Baseline  Mean mg/24 hr(SD):  A (n=19) 642 (191);  B (n=24) 811 (351);  C (n=21) 788 (210)  % hyperUA: NR  F/u Time 1: 6 mo.  Mean mg/24 hr(SD):  A (n=19) 692 (319);  B (n=24) 535 (255) [p<0.001];  C (n=21) 613 (193) [p<0.01]  % hyperUA: NR  URIC-A SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | PHOSPHORUS  Baseline  Mean mg/24 hr(SD):  A (n=19) 812 (189);  B (n=24) 936 (314);  C (n=21) 884 (262)  % hyperP: NR  F/u Time 1: 6 mo.  Mean mg/24 hr(SD):  A (n=19) 776 (265);  B (n=24) 911 (263);  C (n=21) 772 (237) [p<0.05]  % hyperP: NR  CA-P SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | CITRATE  Baseline  Mean mg/24 hr(SD):  A (n=19) 484 (172);  B (n=24) 535 (271);  C (n=21) 637 (391)  % hypoCit: NR  F/u Time 1: 6 mo.  Mean mg/24 hr(SD):  A (n=19) 491 (214);  B (n=24) 484 (234);  C (n=21) 557 (247)  % hypoCit: NR  SODIUM  Baseline  Mean mM/24 hr(SD):  A (n=19) 210 (61);  B (n=24) 218 (80);  C (n=21) 201 (64)  % hyperNa: NR  F/u Time 1: 6 mo.  Mean mM/24 hr(SD):  A (n=19) 208 (80);  B (n=24) 190 (76);  C (n=21) 159 (51) [p<0.05]  % hyperNa: NR  MAGNESIUM  Baseline  Mean mg/24 hr(SD):  A (n=19) 106 (37);  B (n=24) 116 (36);  C (n=21) 108 (33)  % hypoMg: NR  F/u Time 1: 6 mo.  Mean mg/24 hr(SD):  A (n=19) 94 (38);  B (n=24) 104 (44);  C (n=21) 81 (28) [p<0.001]  % hypoMg: NR | POTASSIUM  Baseline  Mean mM/24 hr(SD):  A (n=19) 54 (15);  B (n=24) 54 (15);  C (n=21) 50 (13)  % hypoK: NR  F/u Time 1: 6 mo.  Mean mM/24 hr(SD):  A (n=19) 51 (22);  B (n=24) 58 (25);  C (n=21) 51 (15)  % hypoK: NR  VOLUME  Baseline  Mean mL/24 hr(SD):  A (n=19) 1813 (480);  B (n=24) 1995 (772);  C (n=21) 1541 (774)  F/u Time 1: 6 mo.  Mean mL/24 hr(SD):  A (n=19) 2045 (807);  B (n=24) 2193 (897);  C (n=21) 1509 (646)  pH  Baseline  Mean 24 hr(SD):  A (n=19) 5.83 (0.43);  B (n=24) 5.75 (0.46);  C (n=21) 5.86 (0.51)  F/u Time 1: 6 mo.  Mean 24 hr(SD):  A (n=19) 5.95 (0.49);  B (n=24) 6.06 (0.59) [p<0.005];  C (n=21) 5.90 (0.53) |
| Ettinger, 198812 | A. Chlorthalidone 25 mg/d (n=19)  B. Chlorthalidone 50 mg/d (n=23)  C. Magnesium hydroxide 650 mg/d (n=30)  D. Magnesium hydroxide 1300 mg/d (n=21)  E. Placebo (n=31)  24 hour collection  Study reported any data on participant compliance/adherence: Yes (medication compliance confirmed by tablet count – no results reported) | CALCIUM  Baseline  Mean mg/24 hr(SD):  A (n=19) 271 (125)  B (n=23) 299 (138)  C (n=30) 275 (127)  D (n=21) 247 (136)  E (n=31) 232 (117)  % hyperCa:  A (n=19) 15.8  B (n=23) 13.0  C (n=30) 13.3  D (n=21) 14.3  E (n=31) 9.7  F/u Time 1: 24 mo.  Mean (SD):  A (n=19) 196 [p<0.01]  B (n=23) 233 [p<0.01]  C (n=30) no signif change  D (n=21) no signif change  E (n=31) no signif change  % hyperCa: NR  OXALATE  Baseline  Mean mg/24 hr(SD):  A (n=19) 21 (16)  B (n=23) 19 (12)  C (n=30) 29 (19)  D (n=21) 28 (19)  E (n=31) 23 (15)  % hyperOx: NR  F/u Time 1: 24 mo.  Mean mg/24 hr(SD):  A (n=19) 8 [p<0.05]  B (n=23) 14 [not signif]  C (n=30) no signif change  D (n=21) no signif change  E (n=31) no signif change    % hyperOx: NR  CA-OX PRODUCT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR  CA-OX SUPERSAT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR | URIC ACID  Baseline  Mean mg/24 hr(SD):  A (n=19) 768 (207)  B (n=23) 826 (206)  C (n=30) 837 (257)  D (n=21) 734 (181)  E (n=31) 699 (210)  % hyperUA:  A (n=19) 21.1  B (n=23) 26.1  C (n=30) 6.7  D (n=21) 9.5  E (n=31) 9.7  F/u Time 1: mo.  Mean mg/24 hr(SD):  All groups- no signif change  % hyperUA: NR  URIC-A SUPERSAT  Baseline  Mean (SD): NR  F/u Time 1: mo.  Mean (SD): NR | PHOSPHATE  Baseline  N  Mean (SD): NR  % hyperP: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hyperP: NR  CA-P SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | CITRATE  Baseline  N  Mean (SD): NR  % hypoCit: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hypoCit: NR  SODIUM  Baseline  N  Mean (SD): NR  % hyperNa: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hyperNa: NR  MAGNESIUM  Baseline  Mean mg/24 hr(SD):  A (n=19) 93 (33)  B (n=23) 97 (38)  C (n=30) 91 (27)  D (n=21) 97 (27)  E (n=31) 95 (45)  % hypoMg: NR  F/u Time 1: 24 mo.  Mean mg/24 hr(SD):  A (n=19) no signif change  B (n=23) no signif change  C (n=30) 137 [p<0.001]  D (n=21) 148 [p<0.001]  E (n=31) no signif change  % hypoMg: NR | POTASSIUM  Baseline  N  Mean (SD): NR  % hypoK: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hypoK: NR  VOLUME  Baseline  Mean mL/24 hr(SD):  A (n=19) 1744 (720)  B (n=23) 1671 (690)  C (n=30) 1894 (814)  D (n=21) 1579 (675)  E (n=31) 1482 (671)  F/u Time 1: 24 mo.  Mean mL/24 hr(SD):  All groups- no signif change  pH  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N Mean (SD): NR |
| Ala-Opas, 198713 | A. Hydrochlorothiazide 100mg/day for first 5 months (+ bran) (n=28) [hypercalciuric [HU] = 14, normocalciuric [NU] = 14]  B. Control (bran) (n=45) [hypercalciuric [HU] = 18, normocalciuric [NU] = 27]  24 hour collection  Study reported any data on participant compliance/adherence: No | CALCIUM/CREATININE  Baseline  Mean mmol/mmol (SD):  A[HU] (n=14) 0.64 (0.17)  B[HU] (n=18) 0.57 (0.12)  A[NU] (n=14) 0.36 (0.14)  B[NU] (n=27) 0.37 (0.08)    % hyperCa: 41.0  F/u Time 1: 6 mo.  Mean mmol/mmol (SD):  A[HU] (n=14) 0.34 (0.15) [p<0.05]  B[HU] (n=18) 0.37 (0.13) [p<0.05]  A[NU] (n=14) 0.19 (0.08)  B[NU] (n=27) 0.29 (0.16)  % hyperCa:  OXALATE  Baseline  Mean µmol (SD):  A[HU] (n=14) 256 (101)  B[HU] (n=18) 276 (153)  A[NU] (n=14) 167 (71)  B[NU] (n=27) 219 (111)  % hyperOx: NR  F/u Time 1: 6 mo.  Mean µmol (SD):  A[HU] (n=14) 194 (70)  B[HU] (n=18) 281 (189)  A[NU] (n=14) 279 (136)  B[NU] (n=27) 334 (86)  % hyperOx: NR  CA-OX PRODUCT  Baseline  Mean (SD): NR  Time 1: mo.  Mean (SD): NR  CA-OX SUPERSAT  Baseline  Mean (SD): NR  Time 1: mo.  Mean (SD): NR | URIC ACID  Baseline  Mean (SD): NR  % hyperUA: NR  F/u Time 1: mo.  Mean (SD): NR  % hyperUA: NR  URIC-A SUPERSAT  Baseline  Mean (SD): NR  F/u Time 1: mo.  Mean (SD): NR | PHOSPHATE  Baseline  N  Mean (SD): NR  % hyperP: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hyperP: NR  CA-P SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | CITRATE  Baseline  Mean (SD): NR  % hypoCit: NR  F/u Time 1: mo.  Mean (SD): NR  % hypoCit: NR  SODIUM  Baseline  Mean mmol (SD):  A[HU] (n=14) 156 (88)  B[HU] (n=18) 158 (62)  A[NU] (n=14) 113 (33)  B[NU] (n=27) 135 (53)  % hyperNa: NR  F/u Time 1: 6 mo.  Mean µmol (SD):  A[HU] (n=14) 149 (71)  B[HU] (n=18) 144 (53)  A[NU] (n=14) 130 (52)  B[NU] (n=27) 138 (70)  % hyperNa: NR  MAGNESIUM  Baseline  Mean mmol (SD):  A[HU] (n=14) 4.1 (2.1)  B[HU] (n=18) 3.0 (1.4)  A[NU] (n=14) 3.7 (1.6)  B[NU] (n=27) 4.0 (1.6)  % hypoMg: NR  F/u Time 1: 6 mo.  Mean µmol (SD):  A[HU] (n=14) 3.4 (1.4)  B[HU] (n=18) 3.6 (1.4)  A[NU] (n=14) 3.5 (1.4)  B[NU] (n=27) 3.7 (1.4)  % hypoMg: NR | POTASSIUM  Baseline  Mean (SD): NR  % hypoK: NR  F/u Time 1: mo.  Mean (SD): NR  % hypoK: NR  VOLUME  Baseline  Mean (SD): NR  F/u Time 1: mo.  Mean (SD): NR  pH  Baseline  Mean (SD): NR  F/u Time 1: mo.  Mean (SD): NR |
| Laerum, 198414 | A. Hydrochlorothiazide 50 mg/d + potassium chloride 1.2 gm/d (n=23)  B. Placebo (n=25)  24 hour collection  Study reported any data on participant compliance/adherence: No | CALCIUM  Baseline  Mean mmol (SD):  A (n=23) 4.3 (0.55)  B (n=25) 4.92 (0.42)    % hyperCa: 27.1  F/u Time 1: 10 mo.  Mean mmol (SD):  A (n=17) 3.79 (0.46)  B (n=21) 5.0 (0.44)  [p<0.05 A vs B]  % hyperCa: NR  OXALATE  Baseline  Mean (SD): NR  % hyperOx: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hyperOx: NR  CA-OX PRODUCT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR  CA-OX SUPERSAT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR | URIC ACID  Baseline  Mean mmol (SD):  A (n=23) 3.2 (0.25)  B (n=25) 3.1 (0.21)  % hyperUA: 25.0  F/u Time 1: 10 mo.  Mean mmol (SD):  A (n=17) 3.3 (0.28)  B (n=21) 3.5 (0.19)  % hyperUA: NR  URIC-A SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | PHOSPHATE  Baseline  N  Mean (SD): NR  % hyperP: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hyperP: NR  CA-P SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | CITRATE  Baseline  N  Mean (SD): NR  % hypoCit: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hypoCit: NR  SODIUM  Baseline  N  Mean (SD): NR  % hyperNa: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hyperNa: NR  MAGNESIUM  Baseline  Mean mmol (SD):  A (n=23) 3.79 (0.26)  B (n=25) 4.20 (0.22)  % hypoMg: NR  F/u Time 1: 10 mo.  Mean mmol (SD):  A (n=17) 4.28 (0.26)  B (n=21) 4.40 (0.22)  % hypoMg: NR | POTASSIUM  Baseline  N  Mean (SD): NR  % hypoK: NR  F/u Time 1: mo.  N  Mean (SD): NR  % hypoK: NR  VOLUME  Baseline  Mean mL (SD):  A (n=23) 1522 (114)  B (n=25) 1374 (108)  F/u Time 1: 10 mo.  Mean mL (SD):  A (n=17) 1492 (95)  B (n=21) 1638 (96)  pH  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N Mean (SD): NR |
| Scholz, 198215 | A. Hydrochlorothiazide 50 mg/d (n=25)  B. Placebo (n=26)  24 hour collection  Study reported any data on participant compliance/adherence: No | CALCIUM  Baseline  Mean mg (SD):  A (n=25) 249 (20)  B (n=20) 272 (32)  % hyperCa: NR  F/u Time 1: 12 mo.  Mean mg (SD):  A (n=25) 153 (22) [p<0.001]  B (n=20) 235 (26)  % hyperCa: NR  OXALATE  Baseline  Mean mg (SD):  A (n=16) 42 (6)  B (n=13) 47 (6)  % hyperOx: NR  F/u Time 1:12 mo.  Mean mg (SD):  A (n=16) 35 (6)  B (n=13) 22 (6) [p<0.05]  % hyperOx: NR  CA-OX PRODUCT  Baseline  Mean (SD):  A (n=16) 0.96 (0.07)  B (n=13) 0.98 (0.06)  Time 1: 12 mo.  Mean (SD):  A (n=16) 0.71 (0.08) [p<0.05]  B (n=13) 0.71 (0.08) [p<0.05]  CA-OX SUPERSAT  Baseline  N  Mean (SD): NR  Time 1: mo.  N  Mean (SD): NR | URIC ACID  Baseline  Mean mg (SD):  A (n=25) 641 (45)  B (n=19) 699 (37)  % hyperUA: NR  F/u Time 1: 12 mo.  Mean mg (SD):  A (n=25) 593 (50)  B (n=19) 551 (33)  % hyperUA: NR  URIC-A SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | PHOSPHATE  Baseline  Mean mg (SD):  A (n=25) 784 (70)  B (n=19) 824 (75)  % hyperP: NR  F/u Time 1: 12 mo.  Mean mg (SD):  A (n=25) 737 (46)  B (n=19) 759 (44)  % hyperP: NR  CA-P SUPERSAT  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N  Mean (SD): NR | CITRATE  Baseline  Mean mg (SD):  A (n=16) 345 (74)  B (n=16) 350 (46)  % hypoCit: NR  F/u Time 1: 12 mo.  Mean mg (SD):  A (n=16) 332 (70)  B (n=16) 309 (41)  % hypoCit: NR  SODIUM  Baseline  Mean mEq (SD):  A (n=25) 197 (15)  B (n=19) 184 (13)  % hyperNa: NR  F/u Time 1: 12 mo.  Mean mEq (SD):  A (n=25) 173 (14)  B (n=19) 142 (11) [p<0.05]  % hyperNa: NR  MAGNESIUM  Baseline  Mean mg (SD):  A (n=25) 103 (9)  B (n=20) 102 (9)  % hypoMg: NR  F/u Time 1: 12 mo.  Mean mg (SD):  A (n=25) 89 (9)  B (n=20) 85 (5) [p<0.05]  % hypoMg: NR | POTASSIUM  Baseline  Mean mEq (SD):  A (n=25) 61 (5)  B (n=19) 64 (7)  % hypoK: NR  F/u Time 1: 12 mo.  Mean mEq (SD):  A (n=25) 60 (5)  B (n=19) 50 (4)  % hypoK: NR  VOLUME  Baseline  Mean mL (SD):  A (n=25) 1820 (136)  B (n=20) 1891 (116)  F/u Time 1: 12 mo.  Mean mL (SD):  A (n=25) 1820 (166)  B (n=20) 1658 (142)  pH  Baseline  N  Mean (SD): NR  F/u Time 1: mo.  N Mean (SD): NR |

**Abbreviation:** NR = not reported