

Supplementary Table 1. Use of calcium-based phosphate binder and vitamin D during the study period in the 1.25 and 1.75 Ca group.

	Months								
	0	3	6	9	12	15	18	21	24
Use of P-binder %									
1.25 Ca group	0.58	0.68	0.67	0.69	0.61	0.64	0.59	0.60	0.58
1.75 Ca group	0.60	0.68	0.63	0.55	0.57	0.61	0.59	0.55	0.52
<i>p value</i>	0.73	0.98	0.35	0.004	0.24	0.37	0.85	0.24	0.30
Use of vit D (%)									
1.25 Ca group	-	0.01	0.03	0.06	0.10	0.12	0.18	0.28	0.38
1.75 Ca group	-	0.01	0.02	0.02	0.01	0.02	0.04	0.08	0.13
<i>p value</i>	-	0.98	0.78	0.10	<0.001	0.002	<0.001	<0.001	<0.001

Supplemental Table 2. Baseline characteristics of patients with and without initial CAC measurement; baseline characteristics of patients with and without second CAC measurement.

	Initial CAC measurement (n=381)	No baseline measurement (n=44)	<i>p value</i>		Two CACS measurement (n=224)	No second measurement (n=157)	<i>p value</i>
Age (years)	59.7 ± 13.7	58.3 ± 13.4	0.52		60.1 ± 13.1	59.2 ± 14.5	0.80
Female (%)	44	41	0.71		43	45	0.56
Diabetes (%)	26.2	20.4	0.40		24.5	28.6	0.37
Time on hemodialysis (months)	50.6 ± 42.2	53.3 ± 35.4	0.68		50.8 ± 41.3	50.2 ± 43.5	0.88
Cardiovascular disease in history (%)	20.5	30.2	0.41		19.8	21.5	0.68
Smoking (%)	29	30	0.85		29	28	0.95
Systolic BP (mmHg)	125 ± 15	128 ± 18	0.23		124 ± 14	126 ± 15	0.31
Diastolic BP (mmHg)	75 ± 9	75 ± 11	0.86		74 ± 9	76 ± 8	0.19
Pre-dialysis urea (mg/dL)	132 ± 33	135 ± 24	0.66		135 ± 35	129 ± 29	0.07
Pre-dialysis creatinine (mg/dL)	8.4 ± 1.9	8.3 ± 2.4	0.59		8.5 ± 2.0	8.2 ± 1.7	0.13
Potassium (mEq/L)	4.9 ± 0.7	4.8 ± 0.6	0.25		4.9 ± 0.7	4.9 ± 0.7	0.91
Calcium (mg/dL)	9.14 ± 0.61	9.22 ± 0.73	0.44		9.15 ± 0.62	9.14 ± 0.62	0.92

Phosphorus (mg/dL)	4.34 ± 1.14	4.31 ± 1.44	0.89		4.33 ± 0.96	4.35 ± 1.04	0.78
Ca-P product (mg ² /dL ²)	38.0 ± 10.6	38.1 ± 13.5	0.98		38.4 ± 10.3	37.4 ± 11.2	0.42
Alkaline phosphatase (U/L)	103 ± 54	111 ± 72	0.31		98 ± 51	109 ± 57	0.06
Parathyroid hormone (pg/mL)	86 ± 71	80 ± 64	0.63		79 ± 66	95 ± 77	0.03
Equilibrated Kt/V	1.41 ± 0.26	1.35 ± 0.34	0.24		1.39 ± 0.27	1.42 ± 0.24	0.34
Albumin (g/dL)	3.92 ± 0.32	3.91 ± 0.26	0.93		3.91 ± 0.30	3.90 ± 0.35	0.33
Total cholesterol (mg/dL)	181 ± 42	195 ± 51	0.11		182 ± 42	179 ± 42	0.49
Triglyceride (mg/dL)	158 ± 92	211 ± 179	0.06		158 ± 88	158 ± 97	0.95
HDL-cholesterol (mg/dL)	40.2 ± 11.6	42.9 ± 13.2	0.20		40.1 ± 11.0	40.7 ± 12.5	0.49
LDL-cholesterol (mg/dL)	109 ± 35	108 ± 36	0.93		111 ± 35	106 ± 35	0.22
Hemoglobin (g/dL)	11.2 ± 1.2	11.1 ± 1.5	0.72		11.2 ± 1.5	10.9 ± 1.4	0.008
Bicarbonate (mEq/L)	24.2 ± 3.4	25.1 ± 4.0	0.18		24.0 ± 3.5	24.4 ± 3.2	0.25
C-reactive protein (mg/dL)	1.51 ± 1.6	1.23 ± 2.00	0.49		1.50 ± 3.0	1.52 ± 2.0	0.93
Dialysate Ca before the study			0.68				0.54
1.75 mmol/L (%)	65.2	61.5			66.3	64.2	
1.50 mmol/L (%)	34.8	38.5			33.7	35.8	
Use of P-binder (%)	59	58	0.73		60	57	0.63
Dose of P-binder (elementary Ca,	582 ± 729	698 ± 745	0.27		624 ± 650	572 ± 802	0.34

mg/day)							
CAC score (Agatston)	-	-	-		474 ± 886	705 ± 1508	0.08
CAC score (volume)	-	-	-		384 ± 706	556 ± 1179	0.11

Supplemental Table 3. Baseline characteristics of patients with two CAC measurements in the 1.25 and in the 1.75 mmol/L dialysate Ca groups.

	1.25 Ca group (n=120)	1.75 Ca group (n=104)	<i>p value</i>
Age (years)	60.0 ± 13.3	60.2 ± 12.8	0.91
Female (%)	42	45	0.59
Diabetes (%)	23.3	25.9	0.65
Time on hemodialysis (months)	49.1 ± 37.8	52.9 ± 45.3	0.49
Cardiovascular disease in history (%)	19.3	20.3	0.84
Smoking (%)	31	26	0.38
Systolic BP (mmHg)	124 ± 15	126 ± 14	0.89
Diastolic BP (mmHg)	74 ± 9	75 ± 8	0.68
Pre-dialysis urea (mg/dL)	136 ± 33	134 ± 37	0.74
Pre-dialysis creatinine (mg/dL)	8.7 ± 2.0	8.4 ± 2.0	0.22
Potassium (mEq/L)	4.9 ± 0.7	4.9 ± 0.7	0.90
Calcium (mg/dL)	9.21 ± 0.62	9.10 ± 0.59	0.10
Phosphorus (mg/dL)	4.2 ± 1.0	4.12 ± 1.14	0.73
Ca-P product (mg ² /dL ²)	38.7 ± 10.2	37.5 ± 10.3	0.39

Alkaline phosphatase (U/L)	96 ± 45	100 ± 57	0.54
Parathyroid hormone (pg/mL)	76 ± 68	80 ± 65	0.66
Equilibrated Kt/V	1.38 ± 0.27	1.41 ± 0.28	0.30
Albumin (g/dL)	3.86 ± 0.30	3.87 ± 0.30	0.76
Total cholesterol (mg/dL)	181 ± 43	183 ± 42	0.71
Triglyceride (mg/dL)	157 ± 91	159 ± 85	0.85
HDL-cholesterol (mg/dL)	39 ± 10	40 ± 11	0.52
LDL-cholesterol (mg/dL)	110 ± 35	111 ± 35	0.72
Hemoglobin (g/dL)	11.3 ± 1.4	11.3 ± 1.5	0.98
Bicarbonate (mEq/L)	24.4 ± 3.6	23.6 ± 3.4	0.12
C-reactive protein (mg/dL)	1.46 ± 2.65	1.21 ± 2.07	0.38
Dialysate Ca before the study			
1.75 mmol/L (%)	66.6	65.5	0.76
1.50 mmol/L (%)	33.4	34.5	0.81
Use of P-binder (%)	60	61	0.96
Dose of P-binder (elementary Ca, mg/day)	622 ± 680	627 ± 666	0.95
CAC score (Agatston)	452 ± 869	500 ± 909	0.69
CAC score (volume)	351 ± 679	383 ± 698	0.74

Supplemental Table-4. Baseline characteristics of patients with and without initial bone biopsy; baseline characteristics of patients with and without second bone biopsy.

	Initial bone biopsy (n=185)	No bone biopsy (n=240)	<i>p value</i>		Two bone biopsies (n=108)	No second bone biopsy (n=77)	<i>p value</i>
Age (years)	59.1 ± 13.8	59.9 ± 13.6	0.53		58.1 ± 12.6	60.5 ± 15.2	0.23
Female (%)	48	41	0.15		44	52	0.31
Diabetes (%)	28.6	23.0	0.18		27.7	29.8	0.75
Time on hemodialysis (months)	47.6 ± 37.4	53.4 ± 44.2	0.16		46.1 ± 32.3	49.6 ± 44.2	0.53
Cardiovascular disease in history (%)	22.5	20.4	0.60		23.5	21.0	0.68
Smoking (%)	33.5	25.2	0.07		36.7	28.9	0.27
Systolic BP (mmHg)	124 ± 15	126 ± 16	0.26		124 ± 15	124 ± 15	0.92
Diastolic BP (mmHg)	74 ± 8	75 ± 0	0.21		74 ± 8	74 ± 8	0.95
Pre-dialysis urea (mg/dL)	134 ± 35	132 ± 29	0.43		135 ± 39	132 ± 30	0.56
Pre-dialysis creatinine (mg/dL)	8.4 ± 1.9	8.3 ± 1.9	0.39		8.6 ± 2.0	8.2 ± 1.8	0.11
Potassium (mEq/L)	4.9 ± 0.7	4.8 ± 0.7	0.14		4.9 ± 0.7	5.0 ± 0.8	0.43
Calcium (mg/dL)	9.13 ± 0.64	9.16 ± 0.61	0.64		9.11 ± 0.65	9.16 ± 0.62	0.64
Phosphorus (mg/dL)	4.02 ± 1.06	4.22 ± 1.24	0.10		4.11 ± 1.08	3.90 ± 1.04	0.19

Ca-P product (mg ² /dL ²)	37.0 ± 10.1	38.8 ± 11.5	0.12		37.8 ± 10.0	36.0 ± 10.2	0.23
Alkaline phosphatase (U/L)	103 ± 52	103 ± 59	0.99		102 ± 49	104 ± 56	0.81
Parathyroid hormone (pg/mL)	81.5 ± 70.0	88.0 ± 71.9	0.37		79.9 ± 72.6	83.7 ± 66.6	0.72
Equilibrated Kt/V	1.38 ± 0.24	1.40 ± 0.29	0.39		1.38 ± 0.25	1.39 ± 0.22	0.76
Albumin (g/dL)	3.91 ± 0.32	3.86 ± 0.32	0.10		3.93 ± 0.28	3.89 ± 0.37	0.48
Total cholesterol (mg/dL)	185 ± 44	179 ± 42	0.12		185 ± 43	186 ± 47	0.95
Triglyceride (mg/dL)	164 ± 107	163 ± 104	0.85		167 ± 90	161 ± 127	0.73
HDL-cholesterol (mg/dL)	41.1 ± 11.9	40.1 ± 11.7	0.36		38.7 ± 9.7	44.4 ± 13.8	0.001
LDL-cholesterol (mg/dL)	112 ± 34	106 ± 35	0.11		114 ± 34	109 ± 34	0.32
Hemoglobin (g/dL)	11.2 ± 1.49	11.1 ± 1.48	0.43		11.3 ± 1.5	11.0 ± 1.4	0.25
Bicarbonate (mEq/L)	24.2 ± 3.4	24.3 ± 3.6	0.63		23.8 ± 3.2	24.7 ± 3.5	0.07
C-reactive protein (mg/dL)	1.28 ± 2.07	1.64 ± 2.87	0.16		1.20 ± 1.94	1.40 ± 2.25	0.51
Dialysate Ca before the study			0.74				0.71
1.75 mmol/L (%)	68.1	65.2			67.1	69.1	
1.50 mmol/L (%)	31.9	34.8			32.9	30.9	
Use of P-binder (%)	63.2	59.4	0.64		60.1	64.4	
Dose of P-binder (elementary Ca, mg/day)	693 ± 642	598 ± 623	0.71		680 ± 679	753 ± 815	0.51
CAC score (Agatston)	447 ± 899	645 ± 1357	0.13		433 ± 880	466 ± 932	0.81

CAC score (volume)	362 ± 707	518 ± 1068	0.11		360 ± 696	366 ± 726	0.95
Bone formation rate/Bone surface (normal: 1.80-3.80mm ³ /cm ² /year)	-	-	-		1.22 ± 1.48	1.16 ± 1.40	0.77
Mineralization lag time (normal: <100 days)	-	-	-		138 ± 144	160 ± 272	0.57
Bone volume/Tissue volume (normal: 16.8-22.9%)	-	-	-		18.7 ± 7.1	18.7 ± 7.0	0.99

Supplemental Table 5. Baseline characteristics of patients with two bone biopsies in 1.25 and 1.75 mmol/L dialysate Ca groups.

	1.25 Ca group (n=55)	1.75 Ca group (n=53)	<i>p</i> value
Age (years)	58.1 ± 12.8	58.1 ± 12.5	0.99
Female (%)	36	53	0.08
Diabetes (%)	29.0	26.4	0.75
Time on hemodialysis (months)	47.1 ± 32.7	45.1 ± 32.1	0.74
Cardiovascular disease in history (%)	14.8	32.6	0.03
Smoking (%)	37.0	36.5	0.95
Systolic BP (mmHg)	123 ± 14	125 ± 15	0.69
Diastolic BP (mmHg)	74 ± 7	74 ± 9	0.76
Pre-dialysis urea (mg/dL)	132 ± 37	139 ± 40	0.38
Pre-dialysis creatinine (mg/dL)	8.7 ± 2.0	8.6 ± 2.0	0.77
Potassium (mEq/L)	4.8 ± 0.7	5.0 ± 0.7	0.29
Calcium (mg/dL)	9.17 ± 0.59	9.06 ± 0.71	0.38
Phosphorus (mg/dL)	4.04 ± 0.98	4.18 ± 1.17	0.49
Ca-P product (mg ² /dL ²)	37.3 ± 9.6	38.3 ± 10.5	0.58
Alkaline phosphatase (U/L)	99 ± 44	106 ± 53	0.45

Parathyroid hormone (pg/mL)	83 ± 72	76 ± 72	0.57
Equilibrated Kt/V	1.40 ± 0.22	1.35 ± 0.28	0.32
Albumin (g/dL)	3.95 ± 0.29	3.90 ± 0.27	0.31
Total cholesterol (mg/dL)	188 ± 44	183 ± 42	0.53
Triglyceride (mg/dL)	167 ± 94	167 ± 86	0.99
HDL-cholesterol (mg/dL)	38 ± 8	39 ± 11	0.73
LDL-cholesterol (mg/dL)	116 ± 37	112 ± 32	0.58
Hemoglobin (g/dL)	11.4 ± 1.3	11.2 ± 1.6	0.56
Bicarbonate (mEq/L)	24.2 ± 3.4	23.4 ± 3.0	0.20
C-reactive protein (mg/dL)	1.16 ± 2.01	1.23 ± 1.89	0.85
Dialysate Ca before the study			
1.75 mmol/L (%)	69.1	70.1	0.72
1.50 mmol/L (%)	30.9	29.9	0.68
Use of P-binder (%)	62.9	67.9	0.59
Dose of P-binder (elementary Ca, mg/day)	633 ± 683	727 ± 678	0.47