

Supplemental material Table of Contents

Supplemental Table 1. Summary of screening categorization for participants ineligible to participate in the trial.

Supplemental Table 2. Medications at baseline for study participants, by treatment group.

Supplemental Table 3. Summary of missing data on primary and main secondary outcome variables

Supplemental Table 4. On-treatment and compliance-adjusted comparisons of lanthanum and placebo groups at week 96 for intermediate cardiovascular parameters and biochemical parameters.

Additional Acknowledgements

Supplemental Table 1. Summary of screening categorization for participants ineligible to participate in the trial.

Consort Diagram Category	Reason	Number
1945 did not meet eligibility criteria	• Patients without CKD stages 3b and 4 (eGFR between 14 and 45ml/min/1.73m ²)	527
	• Urinary albumin/creatinine ratio not >10mg/mmol	97
	• Serum phosphate not >1.00mmol/L	704
	• Age less than 18 years	6
	• Unable to give informed consent	27
	• Patients with a history of psychological illness or condition which interferes with their ability to understand or comply with the requirements of the study	90
	• Kidney transplantation	39
	• Recent (within 1 month) hospitalisation or cardiovascular event	18
	• Pregnancy or breast feeding	1
	• Medical conditions that impact on phosphate metabolism (apart from CKD), eg. primary hyperparathyroidism or hypoparathyroidism; previous subtotal parathyroidectomy; gastrointestinal malabsorption disorders such as Crohn's disease, ulcerative colitis, coeliac disease or severe liver dysfunction	53
	• Malnutrition, defined as serum albumin <30g/L	10
	• Atrial fibrillation as documented on ECG performed at screening	45
	• Unable to obtain a pulse wave velocity	7
	814 other reasons	• Unknown
• Eligible but not approached for consent (various reasons)		426
• Insufficient information		388

Abbreviations: CKD, chronic kidney disease; ECG, electrocardiogram; eGFR, estimated glomerular filtration rate

Supplemental Table 2. Medications at baseline for study participants, by treatment group.

Medications	Total (n=278)	Placebo (N=140)	Lanthanum (N=138)
ACE inhibitors	92 (33.1%)	47 (33.6%)	45 (32.6%)
ARB	119 (42.8%)	58 (41.4%)	61 (44.2%)
Beta blockers	99 (35.6%)	53 (37.9%)	46 (33.3%)
Diuretics	52 (18.7%)	24 (17.1%)	28 (20.3%)
Calcium channel blockers	141 (50.7%)	64 (45.7%)	77 (55.8%)
Spironolactone	24 (8.6%)	13 (9.3%)	11 (8.0%)
Statin	202 (72.7%)	101 (72.1%)	101 (73.2%)
Calcitriol	25 (9.0%)	13 (9.3%)	12 (8.7%)
Cholecalciferol	63 (22.7%)	36 (25.7%)	27 (19.6%)
Calcium carbonate	15 (5.4%)	6 (4.3%)	9 (6.5%)

Abbreviations: ACE, angiotensin-converting enzyme; ARB, angiotensin II receptor blocker

Results are presented as number (percentage)

Supplemental Table 3. Summary of missing data on primary and main secondary outcome variables

Outcome variable	No data	Baseline but no follow-up measures	No baseline but at least one follow-up measure§	Total participants with missing data
<i>PWV (rated)</i>	6	24	14	44
<i>Agatston score</i>	25	50	14	89
<i>Serum phosphate</i>	4	12	1	17
<i>Serum calcium</i>	4	13	2	19
<i>Serum calcium-phosphate product</i>	4	13	2	19
<i>PTH</i>	33	19	9	61
<i>cFGF-23</i>	27	27	19	73
<i>iFGF-23</i>	24	17	29	70
<i>cFGF-23/ iFGF-23 ratio</i>	29	28	29	86
<i>Urinary phosphate excretion</i>	15	27	20	62
<i>eGFR</i>	4	12	0	16
<i>Creatinine clearance</i>	14	31	26	71
<i>Urine phosphate/creatinine ratio</i>	21	26	52	99

§ As specified in the statistical analysis plan, mean imputation of missing baseline data permitted inclusion of these participants in the analysis.

Supplemental Table 4. On-treatment and compliance-adjusted comparisons of lanthanum and placebo groups at week 96 for intermediate cardiovascular parameters and biochemical parameters.

Outcome variable	On-treatment		Compliance-adjusted	
	Difference [95% CI] [#]	P value	Difference [95% CI] [#]	P value
PWV (m/s)	+0.63 [-0.33, 1.59]	0.20	+0.59 [-0.32, 1.51]	0.20
Agatston score	+203 [-207, 612]	0.33	+176 [-195, 547]	0.35
Serum phosphate (mmol/L)	-0.09[-0.13, -0.01]	0.03	-0.03 [-0.11, -0.05]	0.41
cFGF-23 (RU/mL)*	-0.09 [-0.31, 0.12]	0.39	-0.03 [-0.24, 0.17]	0.74
iFGF-23 (pg/mL)*	-0.20 [-0.46, 0.06]	0.13	-0.08 [-0.33, 0.16]	0.51
PTH (pmol/L)	-0.10 [-0.29, 0.08]	0.27	0.01 (-0.16, 0.18]	0.91
Urinary phosphate excretion (mmol/24hrs)	1.62 [-4.88, 1.63]	0.33	-1.17 [-4.21, 1.87]	0.45

*Log transformed

[#]Lanthanum relative to placebo

Variables in the models include treatment group, visit, treatment group x visit interaction, baseline variable

Abbreviations: cFGF-23, c-terminal fibroblast growth factor 23; iFGF-23, intact fibroblast growth factor 23; PWV, pulse wave velocity

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