

Table SI. Baseline characteristics stratified by CKD stage group (patient-level, n = 86). **CKD stages defined by eGFR (CKD-EPI 2021): G1–G3a ≥ 45 mL/min/1.73 m², G3b–G5 < 45 mL/min/1.73 m². p-values: Wilcoxon rank-sum test (continuous), Fisher's exact test (categorical).**

Variable	Overall, N = 86 ¹	CKD G1–G3a, N = 22 ¹	CKD G3b–G5, N = 64 ¹	p-value ²
Age, years	71.73 (64.22, 78.28)	64.91 (61.98, 74.69)	73.64 (66.31, 79.00)	0.041
Male sex, n (%)				0.4
male	59 (68.6%)	17 (77.3%)	42 (65.6%)	
female	27 (31.4%)	5 (22.7%)	22 (34.4%)	
BMI, kg/m²	27.00 (25.00, 31.80)	27.05 (25.05, 31.28)	27.00 (24.98, 31.90)	0.8
eGFR, mL/min/1.73 m²	37.05 (31.45, 44.88)	48.95 (48.03, 55.30)	34.80 (29.85, 38.05)	<0.001
Creatinine, mg/dL	1.76 (1.51, 2.09)	1.42 (1.27, 1.62)	1.92 (1.67, 2.15)	<0.001
Urea, mg/dL	63.50 (54.25, 83.50)	50.50 (42.25, 57.00)	68.50 (59.50, 95.00)	<0.001
PTH, pg/mL	69.50 (51.50, 107.25)	62.00 (36.00, 69.00)	82.00 (54.00, 112.50)	0.003
Phosphate, mmol/L	1.12 (1.00, 1.20)	1.03 (0.97, 1.12)	1.15 (1.02, 1.23)	0.016
Calcium, mmol/L	2.37 (2.29, 2.46)	2.41 (2.29, 2.46)	2.37 (2.29, 2.45)	0.5
Haemoglobin, g/dL	13.40 (12.10, 14.20)	14.10 (12.90, 14.58)	13.25 (12.05, 13.83)	0.068
25-OH Vitamin D, ng/mL	23.00 (15.00, 36.00)	23.50 (16.00, 32.00)	23.00 (15.00, 38.50)	0.8
CRP, mg/L	2.65 (1.10, 5.93)	1.10 (0.50, 2.30)	3.70 (1.45, 6.50)	0.022
Alkaline phosphatase, U/L	70.00 (58.25, 88.50)	69.00 (53.25, 86.25)	70.00 (59.75, 87.75)	0.5
Uric acid, mg/dL	7.50 (5.85, 8.78)	6.95 (5.93, 8.03)	7.70 (5.95, 8.93)	0.2
Total protein, g/L	69.00 (65.00, 72.00)	69.00 (65.50, 73.75)	69.00 (65.00, 72.00)	0.4
Dyslipidaemia, n (%)	44 (51.2%)	9 (40.9%)	35 (54.7%)	0.3
Diabetes mellitus, n (%)	33 (38.4%)	9 (40.9%)	24 (37.5%)	0.8
Hypertension, n (%)	78 (90.7%)	21 (95.5%)	57 (89.1%)	0.7
Coronary artery disease, n (%)	27 (31.4%)	7 (31.8%)	20 (31.3%)	>0.9
Coronary bypass surgery, n (%)	8 (9.3%)	3 (13.6%)	5 (7.8%)	0.4
Atrial fibrillation, n (%)	12 (14.0%)	3 (13.6%)	9 (14.1%)	>0.9
Pacemaker, n (%)	5 (5.8%)	1 (4.5%)	4 (6.3%)	>0.9

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Variable	Overall, N = 86 ¹	CKD G1–G3a, N = 22 ¹	CKD G3b–G5, N = 64 ¹	p-value ²
Stroke, n (%)	4 (4.7%)	2 (9.1%)	2 (3.1%)	0.3
Peripheral artery disease, n (%)	5 (5.8%)	1 (4.5%)	4 (6.3%)	>0.9
COPD, n (%)	13 (15.1%)	0 (0.0%)	13 (20.3%)	0.033
Depression, n (%)	4 (4.7%)	1 (4.5%)	3 (4.7%)	>0.9
Thyroid disease, n (%)	8 (9.3%)	2 (9.1%)	6 (9.4%)	>0.9
Gout, n (%)	19 (22.1%)	3 (13.6%)	16 (25.0%)	0.4
Osteoporosis, n (%)	4 (4.7%)	0 (0.0%)	4 (6.3%)	0.6
Rheumatic disease, n (%)	7 (8.1%)	2 (9.1%)	5 (7.8%)	>0.9
Anaemia, n (%)	12 (14.0%)	4 (18.2%)	8 (12.5%)	0.5
Smoking, n (%)	13 (15.1%)	5 (22.7%)	8 (12.5%)	0.3
Diabetic nephropathy, n (%)	14 (16.3%)	3 (13.6%)	11 (17.2%)	>0.9
Glomerulonephritis, n (%)	7 (8.1%)	2 (9.1%)	5 (7.8%)	>0.9
Interstitial nephritis, n (%)	7 (8.1%)	1 (4.5%)	6 (9.4%)	0.7
Renal artery stenosis, n (%)	7 (8.1%)	2 (9.1%)	5 (7.8%)	>0.9
Other / unspecified kidney failure, n (%)	2 (2.3%)	1 (4.5%)	1 (1.6%)	0.4
Statins, n (%)	44 (51.2%)	9 (40.9%)	35 (54.7%)	0.3
Diuretics, n (%)	54 (62.8%)	12 (54.5%)	42 (65.6%)	0.4
β -Blockers, n (%)	56 (65.1%)	13 (59.1%)	43 (67.2%)	0.6
ACE inhibitors, n (%)	33 (38.4%)	6 (27.3%)	27 (42.2%)	0.3
Angiotensin receptor blockers, n (%)	37 (43.0%)	9 (40.9%)	28 (43.8%)	>0.9
Calcium channel blockers, n (%)	41 (47.7%)	14 (63.6%)	27 (42.2%)	0.091
Acetylsalicylic acid, n (%)	37 (43.0%)	9 (40.9%)	28 (43.8%)	>0.9
Antiplatelet agents, n (%)	13 (15.1%)	3 (13.6%)	10 (15.6%)	>0.9
Oral anticoagulants, n (%)	15 (17.4%)	3 (13.6%)	12 (18.8%)	0.8
Uric acid-lowering agents, n (%)	32 (37.2%)	7 (31.8%)	25 (39.1%)	0.6

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Variable	Overall, N = 86 ¹	CKD G1–G3a, N = 22 ¹	CKD G3b–G5, N = 64 ¹	p-value ²
Antidepressants, n (%)	5 (5.8%)	2 (9.1%)	3 (4.7%)	0.6
Corticosteroids, n (%)	7 (8.1%)	2 (9.1%)	5 (7.8%)	>0.9
Vitamin D supplementation, n (%)	37 (43.0%)	8 (36.4%)	29 (45.3%)	0.6
Calcium supplementation, n (%)	5 (5.8%)	1 (4.5%)	4 (6.3%)	>0.9
Thyroxine, n (%)	18 (20.9%)	5 (22.7%)	13 (20.3%)	0.8
Proton pump inhibitors, n (%)	27 (31.4%)	8 (36.4%)	19 (29.7%)	0.6

¹Median (IQR); n (%)

²Wilcoxon rank sum test; Fisher's exact test

Table SII. Baseline characteristics stratified by chronic pruritus status during follow-up (patient-level, n = 86). **Patients were classified as having chronic pruritus if itch lasting ≥6 weeks was reported at any study visit. p-values: Wilcoxon rank-sum test (continuous), Fisher's exact test (categorical).**

Variable	Overall, N = 86 ¹	No chronic pruritus, N = 60 ¹	Chronic pruritus, N = 26 ¹	p-value ²
Age, years	71.73 (64.22, 78.28)	71.11 (63.28, 77.29)	74.95 (65.54, 79.03)	0.2
Male sex, n (%)				0.6
male	59 (68.6%)	40 (66.7%)	19 (73.1%)	
female	27 (31.4%)	20 (33.3%)	7 (26.9%)	
BMI, kg/m ²	27.00 (25.00, 31.80)	26.85 (24.90, 32.20)	27.25 (25.10, 31.08)	>0.9
eGFR, mL/min/1.73 m ²	37.05 (31.45, 44.88)	37.60 (31.23, 45.65)	35.45 (33.70, 41.80)	0.7
Creatinine, mg/dL	1.76 (1.51, 2.09)	1.75 (1.52, 2.07)	1.85 (1.52, 2.07)	0.8
Urea, mg/dL	63.50 (54.25, 83.50)	63.50 (53.75, 88.50)	64.50 (55.25, 72.25)	0.7
PTH, pg/mL	69.50 (51.50, 107.25)	66.50 (46.25, 100.00)	81.00 (61.25, 119.75)	0.10
Phosphate, mmol/L	1.12 (1.00, 1.20)	1.11 (1.00, 1.21)	1.12 (1.01, 1.19)	>0.9
Calcium, mmol/L	2.37 (2.29, 2.46)	2.40 (2.28, 2.46)	2.37 (2.31, 2.41)	0.6
Haemoglobin, g/dL	13.40 (12.10, 14.20)	13.55 (12.10, 14.20)	13.10 (12.25, 14.10)	0.5
25-OH Vitamin D, ng/mL	23.00 (15.00, 36.00)	27.00 (17.50, 36.50)	17.00 (12.75, 34.50)	0.12
CRP, mg/L	2.65 (1.10, 5.93)	2.60 (1.10, 5.10)	3.40 (1.45, 6.50)	0.5
Alkaline phosphatase, U/L	70.00 (58.25, 88.50)	70.50 (58.50, 89.25)	69.50 (58.25, 84.75)	>0.9
Uric acid, mg/dL	7.50 (5.85, 8.78)	7.35 (5.78, 8.93)	7.95 (6.40, 8.55)	0.6
Total protein, g/L	69.00 (65.00, 72.00)	69.50 (65.75, 72.00)	67.00 (65.00, 70.75)	0.2
Dyslipidaemia, n (%)	44 (51.2%)	26 (43.3%)	18 (69.2%)	0.035
Diabetes mellitus, n (%)	33 (38.4%)	20 (33.3%)	13 (50.0%)	0.2
Hypertension, n (%)	78 (90.7%)	52 (86.7%)	26 (100.0%)	0.10
Coronary artery disease, n (%)	27 (31.4%)	16 (26.7%)	11 (42.3%)	0.2
Coronary bypass surgery, n (%)	8 (9.3%)	4 (6.7%)	4 (15.4%)	0.2
Atrial fibrillation, n (%)	12 (14.0%)	8 (13.3%)	4 (15.4%)	0.7

Table SII. Baseline characteristics stratified by chronic pruritus status during follow-up (patient-level, n = 86). **Patients were classified as having chronic pruritus if itch lasting ≥ 6 weeks was reported at any study visit. p-values: Wilcoxon rank-sum test (continuous), Fisher's exact test (categorical).**

Variable	Overall, N = 86 ¹	No chronic pruritus, N = 60 ¹	Chronic pruritus, N = 26 ¹	p-value ²
Pacemaker, n (%)	5 (5.8%)	2 (3.3%)	3 (11.5%)	0.2
Stroke, n (%)	4 (4.7%)	2 (3.3%)	2 (7.7%)	0.6
Peripheral artery disease, n (%)	5 (5.8%)	2 (3.3%)	3 (11.5%)	0.2
COPD, n (%)	13 (15.1%)	8 (13.3%)	5 (19.2%)	0.5
Depression, n (%)	4 (4.7%)	4 (6.7%)	0 (0.0%)	0.3
Thyroid disease, n (%)	8 (9.3%)	6 (10.0%)	2 (7.7%)	>0.9
Gout, n (%)	19 (22.1%)	15 (25.0%)	4 (15.4%)	0.4
Osteoporosis, n (%)	4 (4.7%)	3 (5.0%)	1 (3.8%)	>0.9
Rheumatic disease, n (%)	7 (8.1%)	5 (8.3%)	2 (7.7%)	>0.9
Anaemia, n (%)	12 (14.0%)	8 (13.3%)	4 (15.4%)	0.7
Smoking, n (%)	13 (15.1%)	9 (15.0%)	4 (15.4%)	>0.9
Diabetic nephropathy, n (%)	14 (16.3%)	10 (16.7%)	4 (15.4%)	>0.9
Glomerulonephritis, n (%)	7 (8.1%)	5 (8.3%)	2 (7.7%)	>0.9
Interstitial nephritis, n (%)	7 (8.1%)	6 (10.0%)	1 (3.8%)	0.7
Renal artery stenosis, n (%)	7 (8.1%)	5 (8.3%)	2 (7.7%)	>0.9
Other / unspecified kidney failure, n (%)	2 (2.3%)	2 (3.3%)	0 (0.0%)	>0.9
Statins, n (%)	44 (51.2%)	27 (45.0%)	17 (65.4%)	0.10
Diuretics, n (%)	54 (62.8%)	37 (61.7%)	17 (65.4%)	0.8
β -Blockers, n (%)	56 (65.1%)	38 (63.3%)	18 (69.2%)	0.6
ACE inhibitors, n (%)	33 (38.4%)	23 (38.3%)	10 (38.5%)	>0.9
Angiotensin receptor blockers, n (%)	37 (43.0%)	28 (46.7%)	9 (34.6%)	0.3
Calcium channel blockers, n (%)	41 (47.7%)	28 (46.7%)	13 (50.0%)	0.8
Acetylsalicylic acid, n (%)	37 (43.0%)	26 (43.3%)	11 (42.3%)	>0.9
Antiplatelet agents, n (%)	13 (15.1%)	7 (11.7%)	6 (23.1%)	0.2

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Variable	Overall, N = 86 ¹	No chronic pruritus, N = 60 ¹	Chronic pruritus, N = 26 ¹	p-value ²
Oral anticoagulants, n (%)	15 (17.4%)	9 (15.0%)	6 (23.1%)	0.4
Uric acid-lowering agents, n (%)	32 (37.2%)	24 (40.0%)	8 (30.8%)	0.5
Antidepressants, n (%)	5 (5.8%)	3 (5.0%)	2 (7.7%)	0.6
Corticosteroids, n (%)	7 (8.1%)	4 (6.7%)	3 (11.5%)	0.4
Vitamin D supplementation, n (%)	37 (43.0%)	25 (41.7%)	12 (46.2%)	0.8
Calcium supplementation, n (%)	5 (5.8%)	3 (5.0%)	2 (7.7%)	0.6
Thyroxine, n (%)	18 (20.9%)	12 (20.0%)	6 (23.1%)	0.8
Proton pump inhibitors, n (%)	27 (31.4%)	18 (30.0%)	9 (34.6%)	0.8

¹Median (IQR); n (%)

²Wilcoxon rank sum test; Fisher's exact test