

of 834 patients enrolled in the study. Patients were followed by the study coordinators whenever they presented for routine clinical care to their nephrology clinics. The institutional review boards at all participating sites approved the study, and all patients provided written informed consent. Details of the study design have been published previously (10).

Study Variables

At enrollment and follow-up visits, data on demographic, anthropometric, cause of CKD, comorbidities, laboratory variables, medications, and outcomes (ESRD, death, and cardiovascular events/procedures) were collected. Of 834 patients, 820 had S_K values available at study entry and were included in the analyses. S_K values that were obtained from baseline and subsequent clinic visits were classified into the following categories: ≤ 4.0 , 4.0 to 5.5, and ≥ 5.5 mmol/L.

Statistical Analysis

Linear regression models were used to assess predictors of S_K at baseline, with the adjusted R^2 used to compare models in an all-subsets regression analysis. The distributions of S_K values was illustrated using box plots by eGFR, gender, angiotensin-converting enzyme inhibitor (ACEI) use and quartiles of serum carbon dioxide (CO_2), using all available S_K values during follow-up time. The SAS mixed procedure (SAS Institute, Cary, NC) was used to test for differences in S_K values between groups. To predict S_K during follow-up time, we used mixed linear regression models with a spatial anisotropic exponential covariance structure (to account for correlation between follow-up visits of differing intervals). Separate Cox models evaluated the associations between S_K (as a continuous or as a categorical covariate) and time to death, time to ESRD, the composite outcome of death or ESRD, the composite of death or any cardiovascular event (defined as prespecified coronary disease-, cerebrovascular disease-, or peripheral vascular

Table 1. Patient demographics, comorbidities, medication use, and laboratory variables by serum potassium categories at enrollment

Variable	Overall (<i>n</i> = 820)	Hypokalemia (<i>n</i> = 122)	Eukalemia (<i>n</i> = 633)	Hyperkalemia (<i>n</i> = 65)	<i>P</i>
Demographics					
age (years; mean \pm SD)	60.5 \pm 15.4	60.6 \pm 16.1	60.7 \pm 15.4	58.4 \pm 14.0	0.499
male (<i>n</i> [%])	448 (55)	52 (43)	346 (55)	50 (77)	<0.0001
black (<i>n</i> [%])	167 (20)	37 (30)	117 (19)	13 (20)	0.012
Vital signs (mean \pm SD)					
BMI (kg/m ²)	29.4 \pm 6.9	29.8 \pm 6.9	29.3 \pm 6.9	29.4 \pm 7.7	0.847
SBP (mmHg)	139.7 \pm 21.7	142.8 \pm 23.9	139.4 \pm 21.6	137.8 \pm 18.8	0.211
eGFR (ml/min per 1.73 m ²)	25.4 \pm 10.6	27.0 \pm 13.7	25.3 \pm 9.9	23.2 \pm 10.1	0.059
Cause of CKD (<i>n</i> [%])					
diabetes	265 (32)	39 (32)	199 (32)	27 (42)	0.262
hypertension	402 (49)	60 (49)	310 (49)	32 (49)	0.99
Medication use (yes/no; <i>n</i> [%])					
ACEIs	332 (41)	34 (28)	260 (41)	43 (66)	<0.0001
ARBs	144 (17)	35 (29)	144 (23)	7 (11)	0.021
aspirin	304 (37)	41 (34)	236 (37)	27 (42)	0.549
β blockers	392 (47)	62 (51)	295 (47)	35 (54)	0.414
calcium channel blocker	353 (43)	64 (52)	294 (46)	23 (35)	0.083
diuretics	409 (50)	75 (61)	317 (50)	34 (52)	0.069
erythropoietin	199 (24)	30 (25)	150 (24)	19 (29)	0.609
statins	352 (42)	39 (32)	278 (44)	34 (52)	0.014
Laboratory (mean \pm SD)					
serum albumin (g/dl)	3.8 \pm 0.5	3.7 \pm 0.5	3.8 \pm 0.5	3.7 \pm 0.5	0.098
serum CO_2 (mEq/L)	24.2 \pm 3.9	26.2 \pm 3.7	24.1 \pm 3.8	21.2 \pm 3.5	<0.0001
serum potassium (mmol/L)	4.6 \pm 0.9	3.7 \pm 0.3	4.7 \pm 0.4	5.8 \pm 0.3	<0.0001
serum phosphorus (mg/dl)	4.2 \pm 1.1	4.3 \pm 1.5	4.1 \pm 1.0	4.5 \pm 1.1	0.031
Patient outcomes (<i>n</i> [%])					
death	86 (10)	16 (13)	64 (10)	6 (9)	0.576
ESRD	303 (36)	57 (36)	213 (35)	33 (48)	0.145
coronary artery disease	70	11 (9)	50 (8)	9 (14)	0.258
cardiovascular disease	50	8 (7)	38 (6)	4 (6)	0.977
peripheral arterial disease	70	8 (7)	55 (8)	7 (11)	0.581
any cardiovascular event	190	32 (27)	139 (22)	19 (29)	0.249

Hypokalemia: $S_K \leq 4.0$ mmol/L; eukalemia: $S_K > 4.0$ and < 5.5 mmol/L; hyperkalemia: $S_K \geq 5.5$ mmol/L. ARB, angiotensin II receptor blocker; BMI, body mass index; SBP, systolic BP.