

Serum and Urine Concentrations of Sodium (Na^+) and Potassium (K^+) after a Single Subcutaneous (SC) Injection of a Novel Formulation of Furosemide (FUR)

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Disclosure of Relevant Financial Relationships

Within the prior 24 months, I have had a financial relationship with a company producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients:

Nature of Financial Relationship

Employment Salary / Consultant Fees

Individual Stock(s) / Stock Options

Ineligible Company

MannKind Corporation

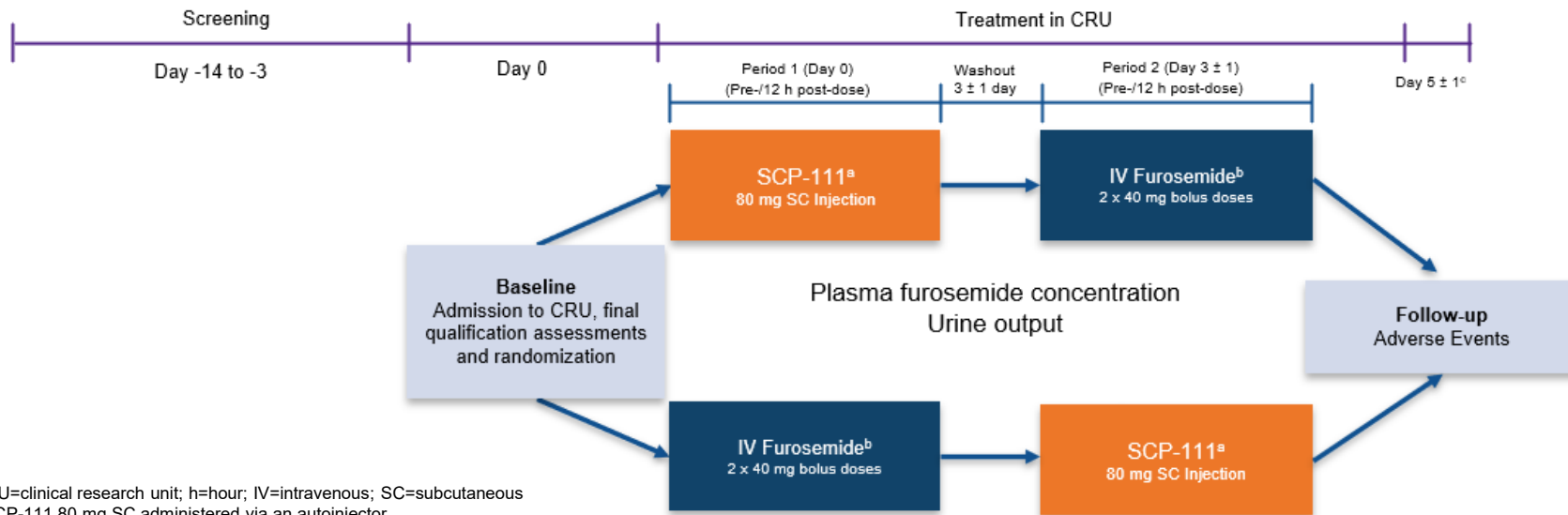
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Background

- Loop diuretics, such as **furosemide**, are often used to treat HF and CKD-related volume overload, but can also cause Na^+ , Cl^- , and K^+ losses due to decreased renal tubular reabsorption
- Worsening congestion in the GI system can reduce loop diuretic bioavailability which often necessitates IV administration
- **The Furoscix On-body Infusor** contains 80 mg/10mL furosemide that delivers 80 mg SC over a 5-hour infusion
 - 30mg over first hour, then 12.5 mg/hr over following 4 hours
- **SCP-111** is investigational 80 mg/mL SC furosemide formulation that delivers 80 mg in a 10 second injection push
- Both Furoscix SC formulations have demonstrated **comparable bioavailability** and **similar urine output and natriuresis as IV bolus** of furosemide
- Monitoring guidance for outpatient IV-equivalent diuresis is scarce

SCP-111 Trial: Study Design and Methods

- Open-label, single center, single dose, randomized, two-way (two period crossover Study) in healthy volunteers



CRU=clinical research unit; h=hour; IV=intravenous; SC=subcutaneous

^aSCP-111 80 mg SC administered via an autoinjector

^bFurosemide IV administered as two, 40 mg doses (over 2 minutes) 2 hours apart (80 mg total dose)

^cFollow-up visit 24-48 hours after discharge from CRU for Crossover Period 2

Alcorn H, et al. Clin Ther. 2025 Nov;47(11):1053-1060.

SCP-111 Trial: Methods

- Objective was to evaluate plasma and urinary Na^+ and K^+ after a single dose of 80mg FUR SC versus 80mg FUR IV
- Blood collected pre-dose and 12 hours post-dose to determine change in Na^+ , K^+ and other electrolytes
- Urine collected for 12 hours to determine hourly cumulative urine output (UO) and urinary Na^+ and K^+ excretion
- Participants excluded if baseline serum K^+ was ≤ 3.0 or ≥ 5.5 mEq/L, or if eGFR was < 30 mL/min/1.73 m²

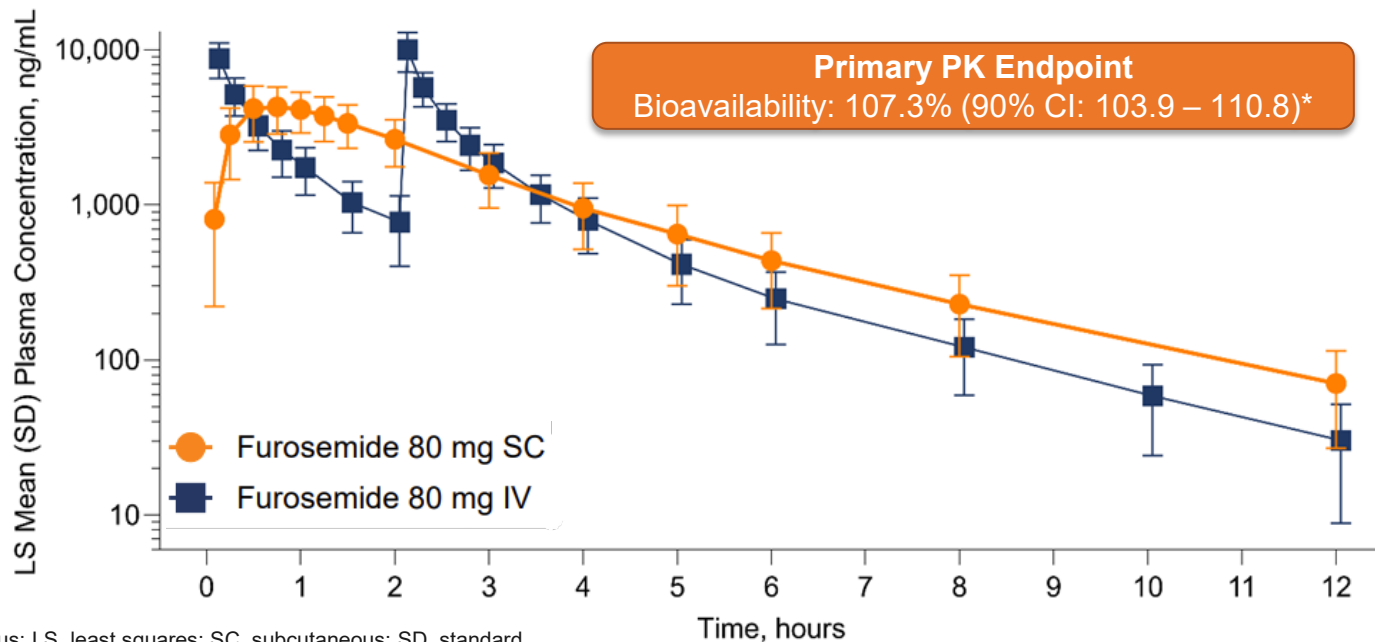
SCP-111 Trial:

Demographics and Baseline Characteristics

	All Participants (n=21)
Median (min, max) age, years	56.0 (45, 71)
Male, n (%)	6 (28.6)
Race, n (%)	
Black or African American	4 (19.0)
White	17 (81.0)
Ethnicity, n (%)	
Hispanic or Latino	5 (23.8)
Not Hispanic or Latino	16 (76.2)
Median (min, max) weight, kg	73.8 (45.8, 143.4)
Median (min, max) BMI, kg/m ²	27.4 (19.3, 51.4)
Median (min, max) eGFR, mL/min/1.73 m ²	79.0 (56, 138)

SCP-111 Trial: Primary Endpoint

Least-Squares Mean Plasma Furosemide-Concentration-Versus Time Curve

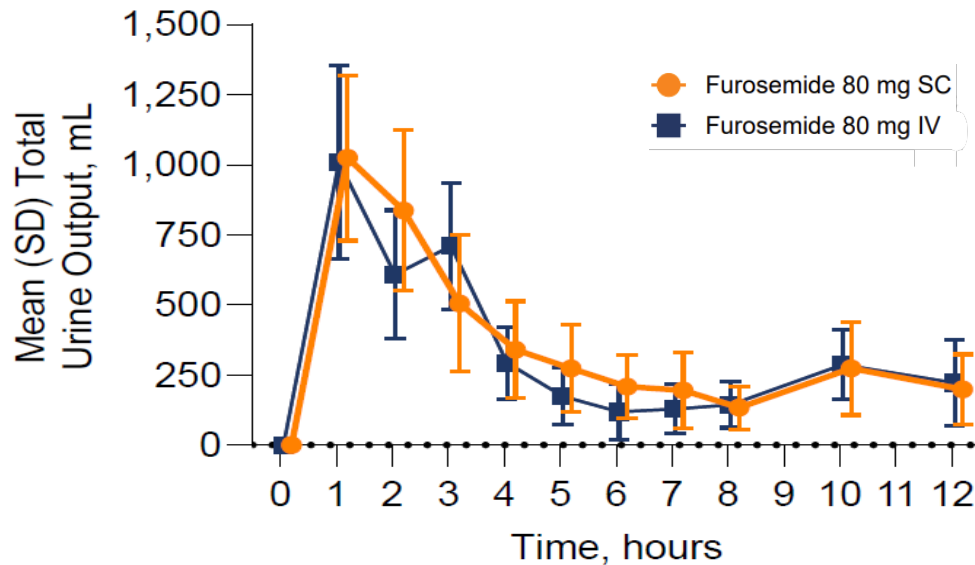


IV, intravenous; LS, least squares; SC, subcutaneous; SD, standard deviation. *LS mean AUC_{inf} , ng·h/mL

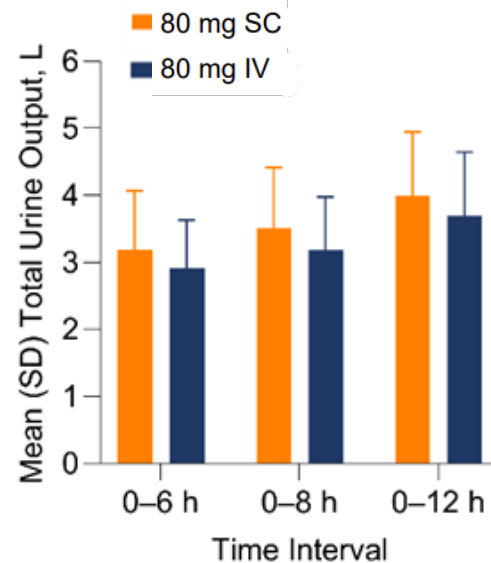
Alcorn H, et al. Clin Ther. 2025 Nov;47(11):1053-1060.

SCP-111 Trial: Secondary Endpoint

Hourly Mean (SD) Post-Dose Total Urine Output



Mean (SD) Post-Dose Total Urine Output by Interval



H, hour; IV, intravenous; SC, subcutaneous; SD, standard deviation.

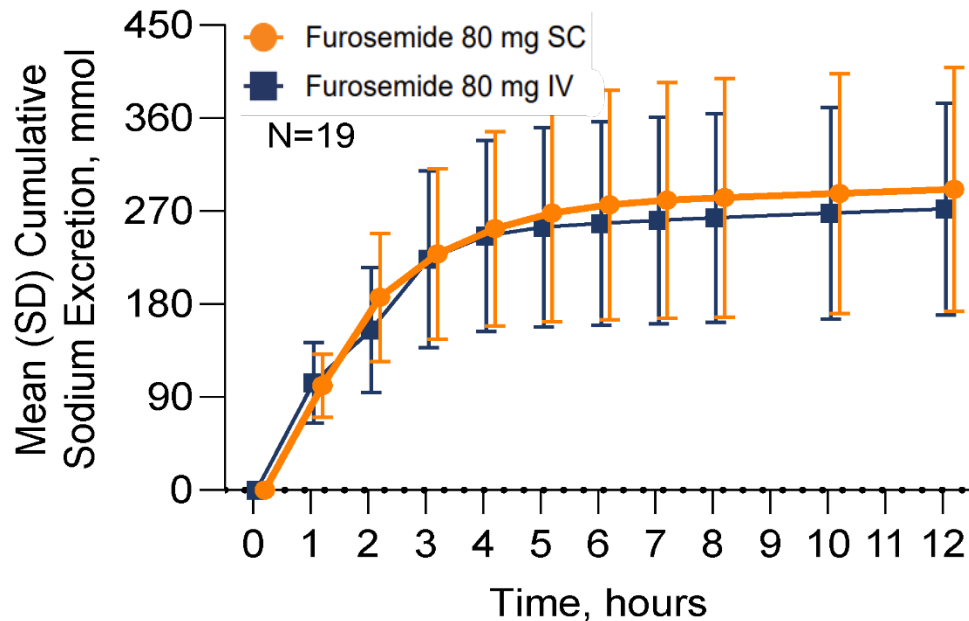
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SCP-111 Trial: Changes in Serum Electrolytes

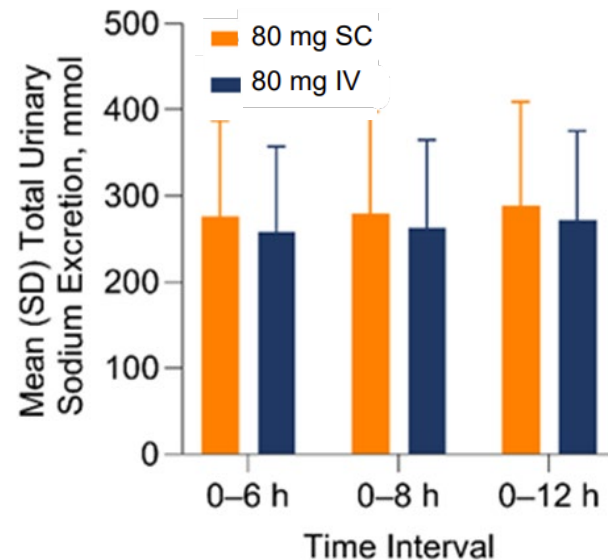
	FUR SC (n=21)			FUR IV (n=20)		
Parameter Median (min, max)	Baseline	12-hour Post Dose	Δ from Baseline	Baseline	12-hour Post Dose	Δ from Baseline
Na (mmol/L)	138.0 (129, 143)	135.0 (118, 142)	-4.0 (-19, 2)	139.0 (129, 145)	137.0 (120, 139)	-2.5 (-13, 3)
K (mEq/L)	4.2 (3.6, 4.8)	3.8 (3.1, 5.1)	-0.4 (-1.0, 0.9)	4.0 (3.4, 4.6)	3.7 (3.3, 4.6)	-0.2 (-0.9, 1)
Cl (mEq/L)	102.0 (96, 108)	97.0 (82, 103)	-6.0 (-19, 0)	103.0 (90, 111)	97.5 (82, 101)	-5.0 (-15, -1)
CO ₂ (mEq/L)	27.0 (21, 32)	29.0 (23, 34)	2.0 (-4, 7)	27.0 (18, 34)	30.0 (25, 33)	2.0 (-2, 7)
BUN (mg/dL)	14.0 (7, 29)	15.0 (6, 23)	0 (-6, 8)	17.0 (5, 31)	15.5 (6, 28)	-1.0 (-3, 1)
Cr (mg/dL)	0.80 (0.46, 1.57)	0.88 (0.61, 1.58)	0.07 (-0.21, 0.34)	0.85 (0.54, 1.55)	0.88 (0.45, 1.52)	0.01 (-0.25, 0.17)
Gluc (mg/dL)	90.0 (71, 114)	98.0 (82, 214)	10.0 (-30, 116)	93.0 (74, 151)	99.5 (64, 169)	6.0 (-35, 82)
Ca (mg/dL)	8.8 (8.2, 9.7)	9.2 (8.2, 10.4)	0.2 (-0.5, 1.56)	9.0 (7.6, 9.5)	9.2 (8.6, 9.71)	0.3 (-0.4, 1)
Mg (mg/dL)	2.0 (1.7, 2.2)	1.9 (1.3, 2.3)	0 (-0.4, 0.3)	1.9 (1.8, 2.1)	1.9 (1.6, 2.2)	-0.05 (-0.3, 0.3)

SCP-111 Trial: Urinary Sodium

Hourly Mean (SD) Post-Dose Total Na⁺ Output

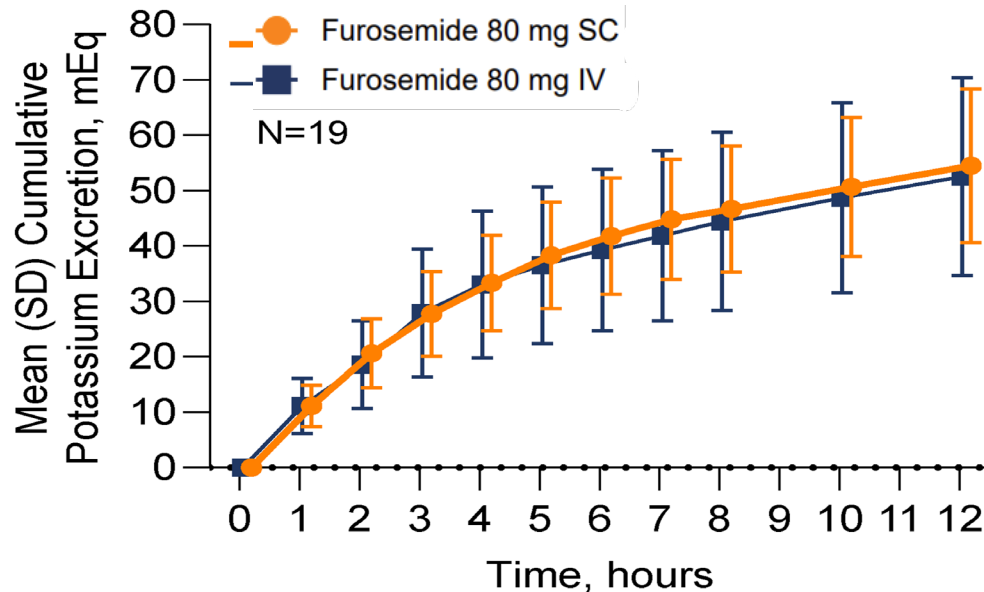


Mean (SD) Post-Dose Total Na⁺ Output by Interval

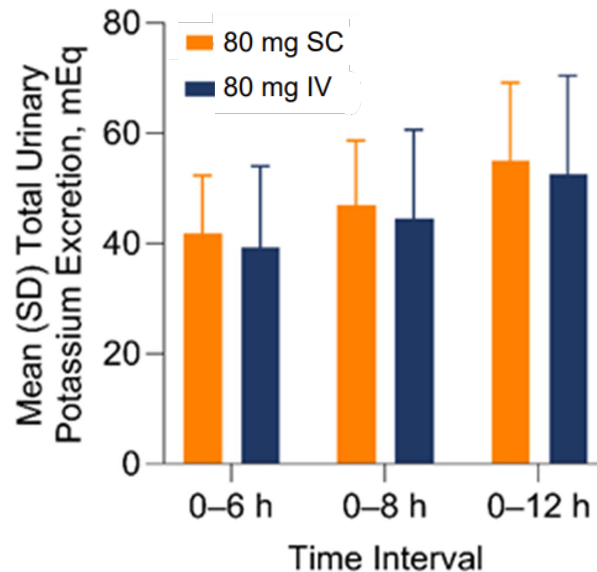


SCP-111 Trial: Urinary Potassium

Hourly Mean (SD) Post-Dose Total K⁺ Output



Mean (SD) Post-Dose Total K⁺ Output by Interval



SCP-111 Trial: Safety

Summary of Treatment Emergent Adverse Events*

N (%)	FUR SC (n=21)	FUR IV (n=20)
Injection site pain	7 (33.3)	0
Injection site bruising	2 (9.5)	1 (5)
Injection site erythema	3 (14.3)	0
Injection site pruritus	1 (4.8)	0
Injection site mass	0	1 (5.0)
Abdominal pain	0	2 (10)
Dizziness	0	1 (5%)
Hypotension (asymptomatic)	0	1 (5%)
Hyponatremia	2 (9.5%)#	0
Muscle spasms	5 (23.8%)	4 (20%)
Nausea	2 (9.5%)	0
Vomiting	1 (4.8)	0

SCP-111 Trial: Conclusions

- FUR SC and FUR IV produced similar changes in serum chemistries and renal function after a single dose in healthy participants
- FUR 80mg SC as a 10 second injection resulted in ~40 and 50 mEq excretion of K⁺ over 6 and 12 hours, respectively, similar to FUR 80mg IV
- Knowledge of K⁺ loss from FUR SC may assist in clinical decision-making for supplementation
- Although study conducted in healthy participants, absence of concomitant medication and disease state confounders provided clearer assessment of laboratory changes
- Most AEs from FUR SC were injection site-related with systemic AEs similar to FUR IV
- FUR SC is practical alternative to FUR IV for diuresis in the outpatient setting