

 **CARDIAC FUNCTION AND HEART FAILURE**

**COMPARISON OF THE EFFICACY AND SAFETY OF VARIOUS DIURETIC REGIMENS USED TO OVERCOME DIURETIC RESISTANCE IN ACUTE HEART FAILURE**

ACC Poster Contributions

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Authors: *Tien M. Ng, Erica Konopka, Alfiya F. Hyderi, Shenche Hshieh, Yuki Tsuji, Brian J. Kim, Song Y. Han, Duc H. Phan, Aaron I. Jeng, Mimi Lou, Uri Elkayam, University of Southern California, Los Angeles, CA*

**Background:** Little is known about regimens used to overcome diuretic resistance in acute heart failure (AHF). Our purpose was to evaluate the comparative effect on urine output (UO) and renal function between continuous infusion furosemide (CIF), combination furosemide plus metolazone (F+M), and continuous infusion bumetanide (CIB) in AHF refractory to bolus furosemide.

**Methods:** A retrospective cohort study was conducted in patients initially receiving intermittent bolus furosemide and escalated to CIF, F+M, or CIB. Primary endpoints were the comparisons between regimens for change in hourly UO versus baseline, and incidence of renal insufficiency. To account for differences in baseline renal function, an additional analysis was performed in patients with Scr <1.5mg/dL.

**Results:** 242 patients were included. Baseline characteristics were similar between groups (mean age 58±12y, 63% male, LVEF 38±17%) except for Scr and BUN. Mean duration of the refractory regimens was 41±32h. Results are summarized in the table. Differences in UO and BUN were retained in the analysis limited to patients with baseline Scr <1.5mg/dL, where renal function between groups was not different (data not shown).

Endpoint	CIF N=160	F+M N=42	CIB N=40	p-value
Dose Range	2.5-10mg/h	2.5-5mg	0.5-2mg/h	
Hourly UO at baseline (mL)	114±85	96±52	89±58	0.383
Change in hourly UO (mL)	+48±103	+109±171	+90±90	0.009
Hourly net fluid balance at baseline (mL)	-63±151	-28±71	-3±65	0.045
Change in hourly net fluid balance (mL)	-36±150	-113±199	-98±116	0.045
Baseline Scr (mg/dL)	1.39±0.69	1.67±1.0	1.65±0.86	0.185
Change in Scr (mg/dL)	0.05±0.38	0.03±0.32	0.04±0.41	0.819
Baseline BUN (mg/dL)	29±16	41±27	35±24	0.038
Change in BUN (mg/dL)	1.8±10.8	4.4±9.8	4.3±9.7	0.096
Renal insufficiency (↑0.3mg/dL or 25%)	35 (22%)	9 (25%)	8 (23%)	0.947
Hyponatremia	44 (28%)	18 (50%)	22 (63%)	<0.001
Hypokalemia	43 (27%)	16 (46%)	10 (29%)	0.095
SBP < 90 mmHg	82 (53%)	19 (45%)	15 (38%)	0.21

**Conclusions:** Each regimen increased UO and net fluid loss compared to intermittent bolus furosemide, although F+M or CIB were associated with greater effects compared to CIF. No difference in incidence of renal insufficiency was found, however electrolyte abnormalities may be more prevalent when F+M or CIB is used.