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Heart Failure and Cardiomyopathies

HEMOCONCENTRATION DURING MANAGEMENT OF PATIENTS WITH ACUTE HEART FAILURE AND CARDIORENAL SYNDROME: INSIGHTS FROM CARRESS-HF

Poster Contributions
Poster Hall, Hall C
Friday, March 17, 2017, 3:45 p.m.-4:30 p.m.

Session Title: Acute Heart Failure: Evaluating Strategies to Prevent Readmissions
Abstract Category: 13. Heart Failure and Cardiomyopathies: Clinical
Presentation Number: 1163-259

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Background: Hemoconcentration correlates with superior decongestion and improved outcomes among acute heart failure (AHF) patients, but data are limited to those with preserved renal function receiving intravenous diuretics. The role of hemoconcentration in AHF complicated by cardiorenal syndrome (CRS) or managed with ultrafiltration is unknown.

Methods: The CARRESS-HF trial randomized 188 hospitalized AHF patients with CRS to a stepped pharmacologic regimen or ultrafiltration. In-hospital hemoglobin change was calculated and used to define hemoconcentrators (i.e., in-hospital increase) and non-hemoconcentrators (i.e., in-hospital decrease or no change).

Results: Of 150 (80%) patients with complete hemoglobin data, 82 were hemoconcentrators and 68 were non-hemoconcentrators. There were no significant differences in baseline characteristics between groups (Table). In-hospital weight loss, fluid loss, and worsening renal function were not significantly different. After adjustment, hemoconcentration was not associated with 60-day risk of death, rehospitalization or unscheduled visits (HR 1.07, 95% CI 0.67-1.70). This relationship did not differ by ultrafiltration use (*P* for interaction =0.59).

Conclusions: In this AHF cohort with CRS, hemoconcentration was not associated with decongestion or clinical outcomes, irrespective of ultrafiltration use. The clinical application of hemoconcentration in AHF may be limited to patients with preserved baseline renal function.

Table. Baseline characteristics and in-hospital decongestion by hemoconcentration status

	Hemoconcentrators (N=82)	Non-hemoconcentrators (N=68)	P-value
In-hospital hemoglobin change (g/dL)	+0.75 (0.30, 1.20)	-0.65 (-1.00, -0.30)	---
Baseline hemoglobin (g/dL)	11.0 (9.3, 12.0)	11.0 (9.7, 12.2)	0.37
Age (years)	68 (60,75)	67 (56, 79)	0.82
Male	60 (73)	52 (77)	0.64
White race	61 (74)	48 (71)	0.60
Ischemic HF etiology	47 (57)	43 (63)	0.46
Systolic blood pressure (mmHg)	112 (104, 123)	117 (103, 126)	0.18
Ejection fraction ≤40%	49 (60)	45 (66)	0.42
eGFR (mL/min/1.73 m^2)	29.4 (25.5, 39.1)	30.7 (23.9, 39.1)	0.87
Body mass index	34.4 (27.3, 42.5)	32.3 (29.5, 41.0)	0.92
Congestion score [a]	2 (2, 2)	2 (2, 2)	0.17
Randomized to ultrafiltration	39 (48)	39 (57)	0.23
In-hospital changes			
Worsening renal function [b]	19 (23)	18 (27)	0.57
Change in creatinine (mg/dL)	-0.1 (-0.4, 0.2)	0.0 (-0.3, 0.3)	0.07
Change in weight (%)	-6.1 (-10.7, -3.8)	-6.2 (-10.0, -1.9)	0.24
Net fluid loss (mL)	8462 (5645, 13100)	8617 (4990, 13214)	0.94
Change in dyspnea VAS score [c]	+22.0 (1.5, 42.0)	+20.0 (3.0, 40.0)	0.88
Change in global VAS score [c]	+20.5 (5.0, 45.0)	+15.5 (-3.5, 42.0)	0.35
Change in congestion score [a]	-1.5 (-3.0, -1.0)	-1.0 (-3.0, -1.0)	0.61

Values expressed as median (25^{th}, 75^{th} percentile) or n (%).

[a] Defined on a 0 to 4 point scale based on symptoms of orthopnea (≥2 pillows=2 points, <2 pillows=0 points) and peripheral edema (trace=0 points, moderate=1 point, severe=2 points).

[b] Defined as an increase in creatinine of ≥0.3 mg/dL.

[c] Based on patient reported visual analogue scale (VAS) ranging from 0 (i.e. 'worst imaginable health state') to 100 (i.e. 'best imaginable health state').