Effect of Albumin Administration on Acute Kidney Injury after Paracentesis in Hospitalized Patients with and without Chronic Kidney Disease

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Objectives

Paracentesis is a common bedside procedure performed to diagnose the etiology of ascites, identify spontaneous bacterial peritonitis and provide symptomatic relief for diuretic-resistant ascites.

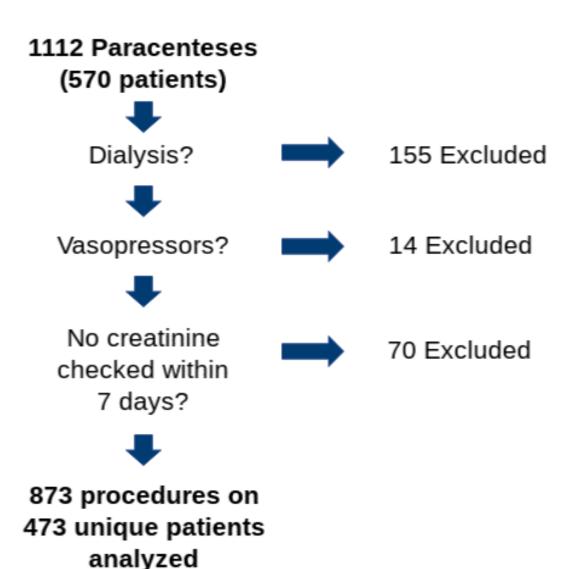
The AASLD recommends administration of albumin for patients with >5L of fluid removed to reduce renal injury.

At our institution, we noted a few patients with chronic kidney disease (CKD) who developed AKI after paracentesis—even with <5L removed—and progressed quickly to requiring dialysis.

We designed a retrospective study to determine:

- 1) whether history of CKD is associated with greater risk of developing AKI after paracentesis in hospitalized adults
- 2) whether albumin is protective against AKI after paracentesis in patients with CKD

Methods



AKI = rise in serum Cr of 0.3 or 1.5 times the pre-procedure Cr within 7 days

CKD = Baseline GFR <89 measured from the nadir after the AKI withing the last four months prior to procedure

Albumin given (g), ascites removed (cc), antihypertensives, diuretics, MOA therapy and SBP presence were recorded.

Demographics		
Gender		
	male	562/873 (64%)
	female	311 (36%)
Age	57.86 yrs	(+/- 12)
Race /Ethnicity		
	White /Caucasian	740/873 (84.8%)
	Black / African American	66/873 (7.6%)
	Hispanic	20/874 (2.3%)
	Asian	6/873 (0.7%)
	American Indian/Alaska Native	1/873 (0.1%)
	Other	19/873 (2.2%)
	Not Specified	21/873 (2.4%)

Etiology of Ascites		
	Cirrhosis/PVT	667/873 (76.4%)
	Heart Failure	33/873 (3.8%)
	Malignancy	158/873 (18.1%)
	Infectious /Infl ammatory	5/873 (0.6%)
	Other	15/873 (1.7%)
MELD	19.8	(+/- 8.3)

	OR	95% CI
Age	1.00	(0.99-1.02)
Gender	0.96	(0.71-1.31) 7
African American	1.02	(0.57-1.83) 7
Hispanic	0.72	(0.27-1.94) 7
Other	0.87	(0.44-1.71) 7
CKD 2+	1.46	(1.03-20.5) &
Cirrhosis	1.00	(0.1-9.79) 7
Heart Failure	1.44	(0.13-15.91) 7
Malignancy	0.51	(0.05-4.77) 7
Infectious/Inflammatory	0.51	(0.02-12.46) 7
Other volume overload	1.68	(0.14-20.66) 7
Pre-para anti-HTN	1.94 7	(0.99-3.83) 7
Post-para anti-HTN	0.44	(0.22-0.89)
Pre-para diuretics	1.27	(0.86-1.86)
Post-para diuretics	0.79	(0.54-1.17)
MOA therapy	1.10	(0.80-1.51) 7
Albumin dose	1.00	(0.99-1.00) 7
Peritonitis	1.35	(0.79-2.3) 7
Volume Removed	1.00	(1.0-1.0) 7

Results

CKD2 or greater is associated with increased risk of AKI after paracentesis.

Anti-hypertensive use in the 24 hours after paracentesis is associated with less acute kidney injury

Albumin did not protect against AKI.

Future Directions

- Analyze protective effect of albumin in CKD patients specifically (not just in the whole multivariate model)
- Determine at what level of CKD the risk for AKI increases
- Determine how many unique patients developed AKI
- Correct for multiple procedures on the same patient
- Determine if AKI preceding the procedure increases risk for further AKI
- Determine whether certain classes of anti-hypertensives are less likely to be associated with AKI than others

Thanks

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