

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

**1112 Paracenteses
(570 patients)**



Dialysis?



155 Excluded



Vasopressors?



14 Excluded



No creatinine
checked within
7 days?



70 Excluded



**873 procedures on
473 unique patients
analyzed**

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 within the last four months prior to procedure

Albumin given (g), ascites removed (cc), anti-hypertensives, 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 /Inflammatory	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

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