

Evaluating Clinician Adherence to American Association for the Study of Liver Diseases Guidelines for Ascites

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Background

In 2017 there were 41,743 cirrhosis-related deaths in the U.S.¹. Between 2006 and 2011 there were approximately 3,127,986 cirrhosis-related Emergency Department (ED) visits nationwide². In addition, cirrhosis-related mortality increased by 65% between 1999 and 2016 due to a rise in alcohol use disorder and alcohol-related liver disease³.

A common complication of cirrhosis is ascites, which subsequently increases the risk for infections, most commonly spontaneous bacterial peritonitis (SBP). SBP is caused by an enteric bacteria which infects mesenteric lymph nodes and ascitic fluid. In 2012, the American Association for the Study of Liver Diseases (AASLD) produced a practice guideline for medical professionals providing care to patients with clinically detectable ascites. The guideline includes 49 recommendations, based on published literature, which intend to improve care provided to cirrhotic patients with ascites. In this study, we aim to evaluate clinician adherence to 4 main AASLD guidelines in acute management of ED patients with ascites.

Hypothesis

We hypothesize overall adherence to AASLD guidelines for ascites will be poor, but there will be better adherence to more high impact recommendations.

Methods

A retrospective, single-center medical record study was performed on patients with a history of cirrhosis and ascites who underwent a paracentesis at a large, urban academic hospital from January 1, 2016 to June 30, 2018.

- **Inclusion criteria:**
 - Age greater than or equal to 18 years
 - Patients with history of cirrhosis and ascites that underwent paracentesis
 - Paracentesis performed on or between January 1, 2016 and June 30, 2018
- **Exclusion criteria:**
 - Age less than 18 years
 - Paracentesis performed before January 1, 2016 or after June 30, 2018
 - Patients transferred from another facility
 - Pregnant patients, incarcerated patients, UMMC employees, UMSOM students

Data was collected regarding medical history, paracenteses performed, and documented steps. This data was analyzed to determine clinician adherence to AASLD guidelines and barriers to compliance.

This study assesses compliance with the following AASLD recommendations most pertinent to acute care:

- Bedside inoculation of ascitic fluid into blood culture bottles
- Albumin infusion of 6-8 grams per liter of fluid removed for paracenteses >5 liters
- Empiric antibiotic therapy if polymorphonuclear (PMN) leukocyte counts are ≥ 250 cells/mm³
- Follow-up paracentesis after 48 hours of treatment if PMN ≥ 250 cells/mm³ or if culture is positive for atypical organism(s) or if there is atypical response to treatment

Results

- 100 paracentesis procedures were performed in 100 unique patients and included in the study
- In none (0%) of the patients were all guidelines of interest followed completely
- The least followed recommendation was for bedside inoculation (1%)
- Of the 11 patients with paracenteses >5 liters, 7 (63.6%) received albumin $\geq 6-8$ grams per liter of ascitic fluid removed
- All 9 (100%) patients with PMN ≥ 250 cells/mm³ received appropriate antibiotic therapy
- Of those 9, 5 (55.6%) had a follow-up paracentesis performed
- There was a 14% mortality (average age 56) from liver-related complications during the index hospitalization for all patients included in the study

Figure 1: Demographics data for study population

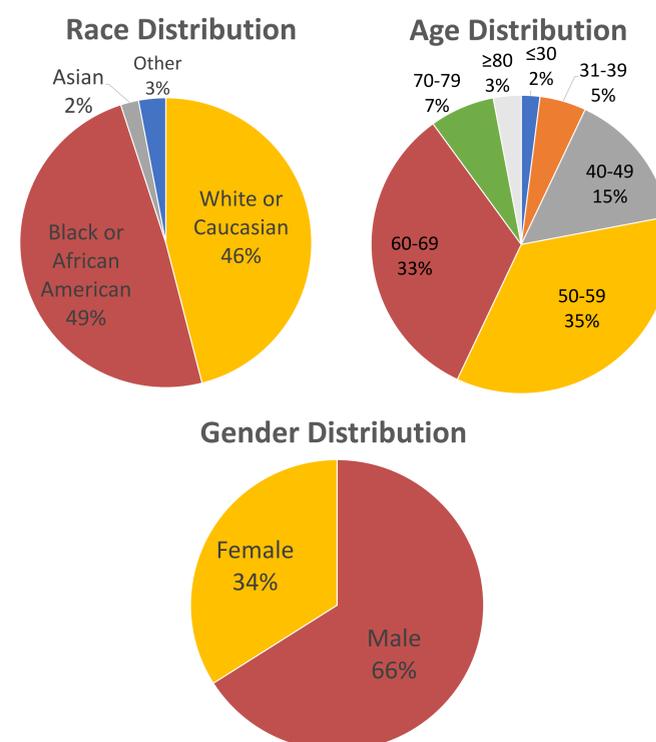


Figure 2: Adherence to AASLD guidelines of interest

AASLD Recommendation	Adherence per case (percentage)
Bedside inoculation of ascitic fluid into blood culture bottles	1/100 (1%)
Albumin infusion of 6-8 grams per liter of fluid removed for paracenteses >5 liters	7/11 (63.6%)
Empiric antibiotic therapy if polymorphonuclear (PMN) leukocyte counts are ≥ 250 cells/mm ³	9/9 (100%)
Follow-up paracentesis after 48 hours of treatment if PMN ≥ 250 cells/mm ³ or if culture is positive for atypical organism(s) or if there is atypical response to treatment	5/9 (55.6%)

Conclusions

- Overall, adherence to AASLD guidelines for the care of patients with ascites due to cirrhosis is poor
- Lack of clear documentation of the bedside inoculation procedure for ascitic fluid into blood culture bottles
- Since there is evidence showing a clinically significant benefit to timely bedside inoculation, further studies are indicated to determine how to improve adherence to this procedure and determine strategies to improve compliance
- Targeted efforts for quality improvement projects are likely to be beneficial and improve patient outcomes

References:

- [1] Murphy SL, Xu JQ, Kochanek KD, Curtin SC, Arias E. Deaths: Final data for 2017. National Vital Statistics Reports, National Center for Health Statistics 2019, vol 68 no 9.
 [2] Pant C, Olyae M, Gilroy R, et al. Emergency Department Visits Related to Cirrhosis: A Retrospective Study of the Nationwide Emergency Department Sample 2006 to 2011. Chiu. K-W, ed. Medicine. 2015, 94(1):e308.
 [3] Tauper EB, Parikh ND. Mortality due to cirrhosis and liver cancer in the United States, 1999-2016: observational study. BMJ. 2018; 362:k2817.