Prophylaxis against spontaneous bacterial peritonitis: Too much or too little?

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Background

- 2012 clinical practice guidelines from the American Association for the Study of Liver Disease (AASLD) recommend antibiotic prophylaxis (ppx) for prevention of spontaneous bacterial peritonitis (SBP)
- Primary SBP ppx is recommended for patients with cirrhosis, hypoproteinemic ascites and sufficient hepatic or renal dysfunction
- Secondary ppx is recommended for those with prior SBP
- Real world adherence to these recommendations is unknown
- Unnecessary antibiotic use contributes to antibiotic resistance, side effects and downstream costs

Aims

- We sought to assess rates of guideline concordance and discordance among a cohort of veterans
- We hypothesized that SBP ppx would be inappropriately overutilized

Methods

- All patients who underwent paracentesis between 1/1/2014 & 12/31/2018 at the Boston VA Healthcare System were screened for inclusion
- Exclusion criteria included absence of cirrhosis and hepatic transplantation prior to or during the eligibility window
- Clinical data were collected from the electronic medical record for the 365 days before and after cohort entry
- Cohort entry was determined by the earliest date where SBP ppx was prescribed
- For patients who did not receive SBP ppx, the date of the earliest paracentesis meeting AASLD criteria was selected
- For patients who did not receive SBP ppx or meet criteria for it, the cohort entry date was selected to be the date of the earliest paracentesis
- Usual criteria for SBP, culture-negative neutrocytic ascites (CNNA) and non-neutrocytic bacterascites (NNBA) were used
- Descriptive & analytical statistics were performed using JMP

Figures & Table

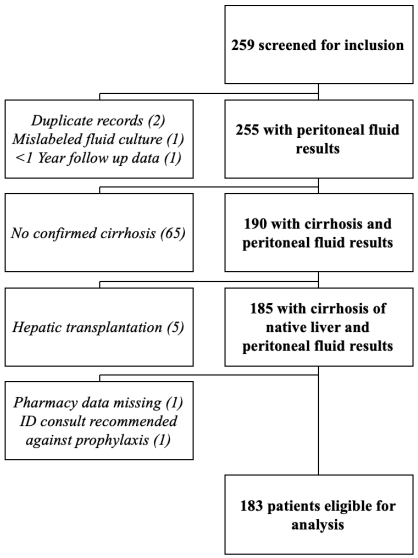

Figure 1. Inclusion & Exclusion Criteria. Of 259 patients, 183 (71%) met ultimately met criteria for inclusion.

Baseline Characteristics	Median	IQR
Age, y	64	58 – 69
	N	Percent
Male	182	99%
Race		
White	165	90%
Black/African-American	7	4%
Native American/Pacific Islander	2	1%
Declined or Unknown	9	4%
Gastroenterology review over prior year		
Any evaluation	123	67%
≥1 Outpatient evaluation	89	49%
Inpatient evaluation only	34	19%
Study Period Observations	**Median**	**IQR**
Duration of follow up, d	257	44 – 365
	N	Percent
Death prior to 1-year mark	105	57%
Inpatient gastroenterology involvement	97	53%
Had paracentesis	77	42%
Met criteria for SBP/CNNA/NNBA	14	8%
Had any culture data collected	123	67%
≥1 culture with growth	30	24%
Growth of resistant enteric GNR	5	3%

Table 1. Baseline Characteristics & Study Period Observations.

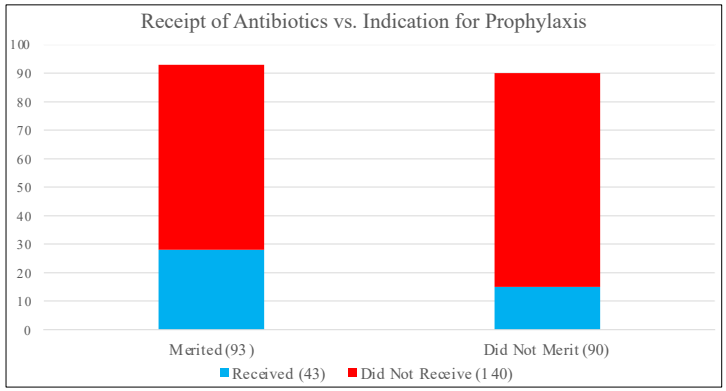

Figure 2. Receipt of Prophylaxis. 30% of patients who merited prophylaxis received it while 17% of patients who did not merit prophylaxis received it inappropriately.

Results

- 259 patients were screened, and 183 (70.7%) met criteria for inclusion [Figure 1]
- The median age was 64.3 years, and 99.4% were male [Table 1]
- 103 patients (56.3%) had SBP ppx prescribed or withheld in a guideline-concordant fashion
- 80 patients (43.7%) had SBP ppx prescribed or withheld in a guideline-discordant fashion
- Among 93 patients who merited SBP ppx, 28 (30.1%) received it; among 90 patients who did not merit it, 15 (16.7%) received it ($p = 0.03$, χ^2 test) [Figure 2]
- Gastroenterologist involvement over the year before the observation period was not correlated with receipt of guideline-concordant care (OR 1.66, 95% CI 0.61 to 2.16, $p = 0.66$)
- Inpatient gastroenterology evaluation during the observation period was correlated with receipt of guideline-concordant care (OR 2.36, 95% CI 1.26 to 4.43, $p < 0.01$)
- Event rates of peritoneal and extraperitoneal infections, drug-resistant infections and illness due to *Clostridioides difficile* were too uncommon to allow for analysis

Conclusions

- In this cohort of veterans, inappropriate underprescription of SBP ppx was observed more frequently than inappropriate overprescription
- Dissemination of guideline recommendations across specialties may help improve clinician adherence rates

Future Directions

- A larger analysis may aid in identifying predictors of receiving guideline-discordant care, which can inform development of interventions and prospective studies

Reference

Runyon BA. Introduction to the revised American Association for the Study of Liver Diseases Practice Guideline management of adult patients with ascites due to cirrhosis 2012. Hepatol. 2013 Apr; 57(4): 1651-1653.