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Abstracts 5503

TREATMENT AND OUTCOMES OF SMALL INTESTINE VARICEAL BLEEDING IN CIRRHOSIS

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INTRODUCTION: Hemorrhage from esophageal varices is a well characterized complication of portal hypertension; conversely, bleeding from ectopic varices is less well described. We aimed to compare a case series of patients with bleeding small intestine varices (SIV) to the existing literature of case reports to determine clinical outcomes.

METHODS: We performed a retrospective study from January 2008–November 2019 at our institution. Natural language processing was used to identify adult patients with cirrhosis and SIV. Chart review was performed to verify SIV based on endoscopy, video capsule, or imaging, and to identify cases of bleeding. Patients with non-cirrhotic portal hypertension and stomal varices were excluded. Separately, we conducted a systematic literature review with a librarian to identify case reports of bleeding SIV in cirrhosis. We used the two-sample t-test for continuous variables and the Fischer's exact test for categorical variables. The Kaplan-Meier limit curve was used to calculate survival.

RESULTS: A total of 18 cases of bleeding SIV were identified at our institution (male n = 8; female n = 10). Mean age was 55.2 years (SD +/- 8.8). The group was predominantly Caucasian (n = 12). Mean MELD-Na was 18.8 (SD +/- 9.0) and alcohol was the predominant etiology for liver disease (n = 8). Varices were duodenal (n = 14), jejunal (n = 3), and ileal (n = 1). Endoscopy was the most frequent modality for detection (n = 11). Treatment and outcomes are shown – Figure 1. Two patients died from gastroenteral hemorrhage. Median follow-up was 103 days with an overall mortality rate of 38.9%. Our literature search yielded 395 cases with 77 included for final analysis (male n = 45; female n = 32). Mean age was 52.3 years (SD +/- 12) and alcohol induced liver disease in most (n = 36). Race and disease severity data were poorly reported, otherwise our case series and the published cases were matched for age, gender, etiology of liver disease, and SIV location. Length of stay 11.1 vs 9.7 days (P = 0.48) and transfusion requirements 11.1 vs 11.5 units RBCs (P = 1.00) were not different. Treatment and outcomes were compared with our case series – Table 1. There was a trend for lower mortality (18.2%) over a median follow-up period of 120 days – Figure 2.

CONCLUSION: Bleeding SIV carry high morbidity and mortality in cirrhosis which may be under-reported due to publication bias. A high rate of failure to control initial bleeding across treatment modalities is concerning.

Health Outcomes in Patients With Hepatic Encephalopathy Managed Through Telemedicine and a Specialized Pharmacy Team

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INTRODUCTION: Cirrhosis predisposes patients (pts) to multiple costly complications, including hepatic encephalopathy (HE). Hospital readmissions are common and ~13% are due to recurrent HE. Based on a Phase 3 registration trial (NEJM 2010; 362: 1071-81), the recommended HE treatment is lactulose +/- rifaximin which is sometimes limited by formulary restrictions/cost. This study assesses the rifaximin approval process, pt compliance and health outcomes in pts with HE in GI/hep practices that use telemedicine and a dedicated pharmacy team with expertise in liver disease.

METHODS: This IRB-approved, ongoing, observational registry captures long-term health outcomes and pharmacy support data every 6 months in cirrhotic pts with at least stage 1 HE taking rifaximin. Concomitant lactulose was allowed per physician discretion. Pts were seen in an office setting and then largely managed via telemedicine. Office visits were scheduled when medically necessary. Analyses comparing this real-world dataset to the rifaximin-treated subgroup in the NEJM trial were also performed.

RESULTS: In this registry cohort of 1215 pts, ~1/2 had HCV, ~1/4 had NASH/NAFLD and ~1/4 had alcoholic cirrhosis; 11.1% had a history of HCC. 98.5% of rifaximin prescriptions were accepted with the first prior authorization request and ~80% started treatment ≤15 days from prescription submission. Baseline characteristics between the registry cohort and the NEJM cohort are in Table 1. After 6 months of rifaximin-treatment, fewer pts in the registry cohort were non-compliant with dosing (6.4% vs 15.8%, P = 0.0006), fewer had HE-related hospitalizations (2.7% vs 13.6%, P < 0.0001) and fewer worsened/died (15.6% vs 26.8%, P < 0.0001) compared to the NEJM cohort. After 6 months, 73.4% remained on rifaximin, 15.7% opted out, 4.9% were lost to follow up and 6.0% died. During the 6-month period, 17.3% of pts visited an ER/urgent care facility and 18.2% were...
hospitalized. The hospitalizations were HE-related in 22.8%. The odds of having a detrimental outcome (death, >hospitalizations or >ER/urgent care visits) was higher for pts whose baseline MELD was ≥12.0 compared to pts whose baseline MELD was < 12.0 (Table 2).

CONCLUSION: Pts with HE who are closely monitored through telemedicine and managed by a specialized pharmacy team tend to do well in an outpatient setting. This cohort of patients had low rates of non-compliance, fewer hospitalizations and deaths/worsening disease compared to the rifaximin-treated group in the NEJM trial.

S0999
Platelet Transfusions Do Not Improve Outcomes in Acute Variceal Hemorrhage
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INTRODUCTION: Patients with cirrhosis have thrombocytopenia due to reduced platelet production and liver/splenic sequestration which leads to a perceived risk of bleeding. Platelet transfusions are commonly used in the management of acute variceal hemorrhage (AVH), even though data on their clinical efficacy is lacking. We investigated the impact of platelet transfusion on outcomes in patients with cirrhosis and AVH.

METHODS: We performed a retrospective cohort study of 244 consecutive patients admitted to 5 tertiary care centers between 2013 – 2018 with AVH who underwent variceal banding. Patients who received platelet transfusion (n = 65) were compared to those who did not receive platelet transfusion (n = 179) using multivariable regression analyses. The primary outcome was mortality at 42 days. The secondary outcomes were mortality at 5 days, failure to control bleeding at 24 hours, and hospitalization.

RESULTS: Patients with AVH who received platelet transfusion had higher MELD score than those who did not receive platelet transfusion (19 vs 17, P = 0.05) and were more likely to have active bleeding at the time of endoscopy (37% vs 17%, P = 0.008). Univariable analysis showed significantly higher 42-day mortality in the platelet transfusion group (38% vs 12%, OR 4.66, 95% CI 2.28–8.73), 5-day mortality (15% vs 3%, OR 6.33, 95% CI 2.07–19.31) and higher risk of failure to control AVH at 24 hours (25% vs 10%, OR 2.92, 95% CI 1.39–6.41) and 5 days (18% vs 4%, OR 4.84, 95% CI 1.88–12.47). In multivariable analyses correcting for factors associated with increased mortality, platelet transfusion was associated with increased odds of 42-day mortality (adjusted OR 5.52, 95% CI 2.34–12.97), 5-day mortality (adjusted OR 11.13, 95% CI 2.08–59.52) and failure to control bleeding by 5 days (adjusted OR 4.52, 95% CI 1.47–13.92) but not failure to control bleeding at 24 hours (adjusted OR 1.98, 95% CI 0.84–4.64). The association of platelet transfusion with 42-day mortality persisted when the cohort was restricted to high risk patients (Child B with active bleeding and Child C) and patients with platelet count ≥50,000. No benefit of platelet transfusion was observed in low-risk patients.

CONCLUSION: Platelet transfusions in AVH are independently associated with higher 42-day mortality, 5-day mortality and failure to control bleeding in 5 days. As this is an observational study, there may be residual bias due to confounding, however, we demonstrate no benefit and potential harm with platelet transfusions in AVH.

S0991
Impact of Influenza in Patients With Chronic Liver Disease: A National Inpatient Analysis
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INTRODUCTION: Over 4.5 million adults in the US are diagnosed with chronic liver disease (CLD). Acute progression of CLD is associated with immune dysregulation from common infections such as influenza. CDC guidelines recommend yearly influenza vaccination for all patients over the age of 6 months regardless of the presence CLD. Prior small-scale studies demonstrated increased risk of hepatic decompensation and hospitalization amongst cirrhotic patients with influenza, however limited data exists for patients with CLDs besides cirrhosis. This study was conducted to demonstrate the impact of influenza amongst patients with a wider array of CLDs.

METHODS: A retrospective cohort study was conducted using the 2010–2014 Nationwide Inpatient Sample. Adults hospitalized with influenza were identified using ICD-9 codes (Table 1). The patients were then stratified and compared based on the diagnosis of alcoholic cirrhosis (AC), nonalcoholic cirrhosis (NC), alcoholic fatty liver (AFL), autoimmune hepatitis (AIH), biliary cirrhosis (BC), non-alcoholic fatty liver disease (NAFLD), or no history of CLD.

RESULTS: A total of 30,268 adults were admitted with influenza of which 515 (1.7%) patients had CLD and 29,733 (98.3%) did not. Patients with CLD had increased risk of disease severity (OR = 2.66, CI 2.26–3.13, P < 0.001), hospitalization cost (OR = 1.24, CI 1.15–1.33, P < 0.001), and length of stay (LOS) (OR = 1.07, CI 1.01–1.15, P = 0.036) (Table 2). With no overall increased risk in mortality of CLD patients, those with AFL and AC had increased odds of mortality (OR = 39.26, CI 1.78–428.46, P = 0.003) and (OR = 4.54, CI 1.23–13.49, P = 0.011), respectively.

CONCLUSION: Patients with CLD admitted for influenza had inferior inpatient outcomes, including hospitalization costs, LOS, and disease severity, however there was no statistical difference in mortality. Stratification by CLD demonstrated that increased risk of negative outcomes not only occurred in patients with cirrhosis, but those with AFL, AC, and NAFLD. Limitations of this study include the analysis of only hospitalized patients, reliance on ICD coding, and lack of vaccination data. The increased risk of disease severity, hospital charges, and length of stay amongst even a small subset of CLD patients highlights the importance of yearly influenza vaccinations in this population. Prior studies have focused on vaccination against influenza in patients with cirrhosis or post-transplant, however our data demonstrates the importance of vaccination for patients with any CLD.

S0991
Hepatic Artery Complications Post Liver Transplantation in Patients Treated With Pretransplant Transarterial Chemoembolization
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INTRODUCTION: The use of locoregional therapy, such as transarterial chemoembolization (TACE), minimizes the risk of hepatocellular carcinoma (HCC) progression in patients with cirrhosis listed for liver transplantation (LT). Previous studies have shown the association of TACE with a higher prevalence of hepatic artery stenosis post LT. In this study, we aimed to compare the prevalence of post-operative hepatic artery complications in LT patients with HCC who received TACE pretransplant versus LT patients with HCC without TACE.

METHODS: We conducted a retrospective single-center cohort study of all adult patients who underwent LT at our institute between 2013 and 2018. We collected data on the presence of HCC, TACE, and recipient demographics, graft characteristics, and perioperative variables (Tables 1 and 2). The primary outcome was the development of HAT and HAS. Secondary outcomes were graft failure and mortality. We used univariate and multivariate logistic regression to ascertain the odds of beneficial outcomes relative to the utilization of TACE. Kaplan Meier estimates were used to compare graft survival and overall survival.

RESULTS: We included 145 HCC patients with cirrhosis, out of a total of 341 patients who underwent LT. We compared 91 patients (75.9% males, 61.4 years median age) who received pre-LT TACE with 54 patients (70.3% males, 61 years median age) who did not. The prevalence of HAT was 23.1% in the TACE group and 22.1% in the no TACE group (P = 0.99). The prevalence of HAT was 7.69% in the TACE group and 3.70% in the no TACE group (P = 0.25) (Table 3). Although statistically not significant, the rates of complications after endovascular therapy (EVT) for the treatment of HAT, was higher in the TACE group compared to the no TACE group (5.49% vs. 4.85%)

| Table 1. ICD-9 Codes used for Nationwide Inpatient Sample (NIS) data extraction |
|---------------------|---------------------|---------------------|---------------------|
| 'Alcoholic Fatty Liver' | 'Alcoholic Cirrhosis' | 'Autoimmune Hepatitis' |
| 571.10 | 571.11 | 571.12 |
| 'Non-Alcoholic Liver' | 'Non-Alcoholic Cirrhosis' | 'Chronic Liver Disease' |
| 571.41 | 571.42 | 571.43 |
| 'Influenza' | 'Influenza B' | 'Influenza B (acute)' |
| 487.80 | 487.81 | 487.82 |

| Table 2. Outcomes for chronic liver disease (CLD) patients admitted with Influenza |
|---------------------|---------------------|---------------------|
| 'Alcoholic Fatty Liver' | 'Alcoholic Cirrhosis' | 'Autoimmune Hepatitis' |
| 571.10 | 571.11 | 571.12 |
| 'Non-Alcoholic Liver' | 'Non-Alcoholic Cirrhosis' | 'Chronic Liver Disease' |
| 571.41 | 571.42 | 571.43 |
| 'Influenza' | 'Influenza B' | 'Influenza B (acute)' |
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