Impact of a GI Clinic-Embedded Pharmacist on Hepatic Encephalopathy Healthcare Resource Utilization, Mortality, and MELD Score

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BACKGROUND

Rifaximin (a specialty product due to its high cost) may have its initiation delayed due to insurance requirements including prior authorizations or lactulose step therapy.[1]

Specialty pharmacists have been shown to improve patient care by optimizing patient medication adherence and improving disease outcomes.[2] However, literature surrounding specialty pharmacists' impact within a gastroenterology (GI) clinic is sparse, especially within hepatic encephalopathy (HE) management.

OBJECTIVE

This study aims to evaluate the effect of a clinic-embedded GI specialty pharmacist on medication adherence, disease management, and healthcare resource utilization (HCRU) associated with the care provided to patients with HE.

METHODS

Design: Retrospective, observational, cross-sectional study

Data sources: Medical claims data and electronic health record (EHR) laboratory data from the Baylor Scott & White Health Caboodle Data Warehouse (50+ hospitals, 500+ specialty care clinics, 200+ satellite outpatient clinics)

Study Periods: Patients were designated to one of two study timeframes, 11/09/20 – 12/31/21,, and the preceding three years (07/01/15 – 11/08/20) based on time of rifaximin initiation. Study periods were designated due to rifaximin's introduction to the clinic-embedded pharmacist EHR medication queue on 11/09/20.

Analysis: Chi-Square Test, Mann-Whitney U Test

Outcomes:

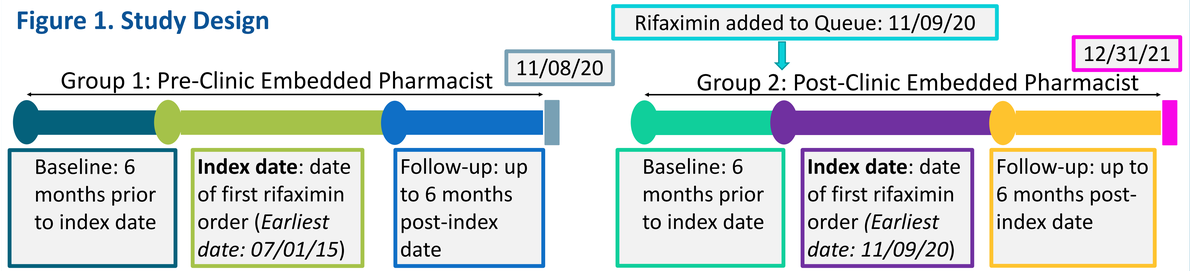
- All-cause HCRU (ED Visits, Hospitalizations)
- Mortality
- Change from Baseline in Model for End-Stage Liver Disease (MELD) Score**

****MELD**[3] = 3.78***ln**[serum bilirubin (mg/dL)] + 11.2***ln**[INR] + 9.57***ln**[serum creatinine (mg/dL)] + 6.43

STUDY CRITERIA

Inclusion	Exclusion
• Age ≥ 18 years • Diagnosis of HE on or prior to index date • ≥ 1 rifaximin 550mg medication order within either study period • Rifaximin order must be associated with a central Texas GI clinic	• ≥1 rifaximin 550mg order within 6 months prior to index date

Figure 1. Study Design



RESULTS

Baseline Characteristic	Pre-Embedded Pharmacist (n=294)	Post-Embedded Pharmacist (n=68)
Age, mean (SD)	63.8 (10.2)	62.7 (9.8)
Female, n (%)	151 (51.3%)	34 (50%)
Race, n (%)		
White	262 (89.1%)	61 (89.7%)
Black or African American	11 (3.7%)	2 (2.9%)
Asian	4 (1.4%)	2 (2.9%)
Other/Unknown	17 (5.8%)	3 (4.4%)

Outcome	Pre-Embedded Pharmacist (n=294)	Post-Embedded Pharmacist (n=68)	*P*-value
ED Visits, Total	294	65	
Patients with ≥1 ED Visit, n (%)	134 (45.6%)	31 (45.6%)	0.99
Hospitalizations, Total	196	44	
Patients with ≥1 Hospitalization, n (%)	117 (39.8%)	24 (35.3%)	0.49
Death within 6 months, n (%)	49 (16.7%)	10 (14.7%)	0.69
MELD Score, n	218	33	
Baseline MELD Score	19.9	18.2	
Post-Rifaximin MELD Score	22.5	23.3	
Change from baseline in MELD score, n	+2.57, n = 218	+5.04, n = 33	0.28

Baseline age, sex, and ethnicity were similar between the two study groups.

The percentage of patients with an ED visit or hospitalization was similar between treatment groups.

6-month mortality was similar between the two groups.

MELD scores were lower at baseline and higher post-rifaximin in the post-embedded pharmacist group. However, these differences were not statistically significant.

LIMITATIONS

Due to its retrospective nature, this study was subject to:

- Missing data points / laboratory values
- Incomplete coding of diagnoses

Additional limitations to generalizability of the results:

- Patients included in the study may not be a representative sample of broader populations
- Adherence data was not available at time of analysis

CONCLUSIONS

HCRU, 6-month mortality, and Change from Baseline in MELD Score were similar between patients treated prior to and after the clinic-embedded pharmacist program.

Additional studies are necessary to measure the connection between adherence and study outcomes.

REFERENCES

1. Abdelnabi M, Patel A, Rengifo-Pardo M, Ehrlich A. Insurance Coverage of Biologics for Moderate-to-Severe Psoriasis: A Retrospective, Observational 5-Year Chart Review. *Am J Clin Dermatol.* 2016;17(4):421-424. doi:10.1007/s40257-016-0194-4
2. Bagwell A, Kelley T, Carver A, Lee JB, Newman B. Advancing Patient Care Through Specialty Pharmacy Services in an Academic Health System. J Manag Care Spec Pharm. 2017;23(8):815-820. doi:10.18553/jmcp.2017.23.8.815
3. Kamath PS, Kim WR; Advanced Liver Disease Study Group. The model for end-stage liver disease (MELD). Hepatology. 2007 Mar;45(3):797-805. doi: 10.1002/hep.21563.

DISCLOSURES

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

Ryan Thaliffdeen	Nothing to disclose
Tim Reynolds	Nothing to disclose
Paul Godley	Nothing to disclose

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