

Janak Bahirwani, MD; Subin Chirayath, DO; Blessing Jerome, DO; Hammad Liaquat, MD & Kimberly Chaput, DO; St Luke's University Health Network, Bethlehem, PA

## Introduction

Acute variceal bleeding (AVB) is one of the most serious complications of cirrhosis and has a high mortality rate. Comprehensive management of AVB requires hemostatic interventions, resuscitation and a combination of medical therapies that has often included proton pump inhibitors (PPIs). PPIs have been extensively used in the management of variceal bleeding and there is not much data to support their long-term benefit in patients with cirrhosis. A few studies that have been conducted support their use for 10-14 days after endoscopic variceal ligation (EVL) to reduce the size of post-banding ulcers but their long-term use to prevent re-bleeding has not been extensively studied. Additionally, PPIs are known to cause more adverse effects in cirrhotic patients than patients without chronic liver disease. Our objective was to study how many patients who presented with AVB were started on a PPI beyond 2 weeks and if it had any impact on re-bleeding.

## Method

We conducted a retrospective chart review of patients admitted between 2012 to 2020 with AVB and were over age 18. We collected data about patient characteristics, re-bleeding rates and duration of PPI intake. We excluded patients who had risk of re-bleeding irrespective of PPI usage- those who did not receive standard therapy or achieve adequate hemostasis at the time of initial bleeding, Child Pugh C, hepatocellular carcinoma and portal vein thrombosis. Statistical analysis was conducted in SPSS version 25 to compute means and frequencies of patient characteristics. Chi-Square tests were done to test differences between patients who re-bled and those who did not.

Characteristics	Value
Number of patients included in the study (n)	249
Age (mean± S.D; range), years	58.9 ± 12.0 ;22 – 88
Ethnicity, n (%)	
Caucasian	187 (75.1)
Hispanic	29 (11.6)
African-American	24 (9.6)
Others	9 (3.4)
Gender, n (%)	
Male	167 (67.1)
Female	82 (32.9)
Etiology of variceal bleed, n (%)	
Alcoholic cirrhosis	115 (46.1)
Hepatitis C cirrhosis	59 (23.7)
NASH cirrhosis	29 (11.7)
Non-cirrhotic portal hypertension	24 (9.7)
Others	22 (8.8)
Patient on PPI beyond 2 weeks, n (%)	
Yes	172(68.9)
No	77 (31.1)
Type of varices, n (%)	
Esophageal	228 (92)
Gastroesophageal	12 (4.8)
Gastric	9 (3.6)
Size of varices, n (%)	
Small	62 (25)
Medium	102 (41)
Large	85 (34)
No of re-bleeding episodes, n (%)	
None	173 (69.5)
1	48 (19.3)
2	23 (9.2)
≥3	5 (2)

Table 1

## Results

A total of 249 patients were included in the study out of 345 who had AVB. A majority of patients were males (67.1%) and Caucasians (75.1%). The median age was 59 years. Alcoholic cirrhosis was the most common etiology in our patients. Their characteristics can be seen in table 1. 69% of patients were on a PPI >2 weeks. Based on a chi square test, the association between PPI use and re-bleeding at < 2 weeks is not statistically significant (p = 0.34). Based on a Mann Whitney rank sums test, there is a just-significant difference in re-bleeding > 2 weeks based on PPI usage (p = .05). Although the medians were the same for both groups, the general distribution of number of re-bleeding episodes was slightly greater for PPI usage compared to non-usage. (table 2)

Re-bleeding timeframe	Patients on PPI at time of re-bleed (n)	Patients not on PPI at time of re-bleed (n)	p value
≤ 2 weeks	20	13	0.35
> 2 weeks	46	13	0.05

Table 2

## Conclusion

A majority of patients who presented with AVB were started on PPI therapy that was unfortunately not discontinued even after 2 weeks. Our study did not demonstrate any benefit from PPI therapy in preventing re-bleeding, however larger studies are needed to investigate this. It is recommended that PPIs should be stopped 10-14 days after an episode of AVB unless there is another indication for long-term therapy.

## References

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