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S1041

The Impact of Hospital Size on the Outcomes of Patients Admitted with Esophageal Variceal Bleeding

Gianina Flocco, MD[1], Mohamad-Noor Abu-Hammour, MD[2], Rashid Abdel-Razeq, MD[3], Prabhat Kumar, MD[4], Miguel J. Salazar, MD[5].*
[1]Cleveland Clinic Foundation, Fairview Park, OH; [2]Cleveland Clinic Fairview, Cleveland, OH; [3]Cleveland Clinic, Cleveland, OH; [4]Cleveland Clinic Foundation, Cleveland, OH; [5]University of California Riverside, Rancho Cucamonga, CA.

Introduction: Esophageal variceal bleeding (EBV) is a potentially serious complication of portal hypertension, often causing significant illness and death in patients with cirrhosis. Studies has shown that 25 to 40% of patients with esophageal varices will suffer severe bleeding. We aim to determine impact of bed size of the admitting institution in outcomes of patients presenting with (EBV).
Methods: We conducted a retrospective analysis of all adult patients admitted with a primary diagnosis of esophageal varices with bleeding (identified by ICD-10 codes) in 2020 that were included in the National Inpatient Sample database. Patients were divided into three groups based on bed size of the admitting institution. In-hospital mortality, length of hospital stay, and in-hospital complications were compared among groups. Multivariate logistic analysis was conducted to adjust for confounders.
Results: A total of 42,119 patients admitted with EBV in 2020 were identified. Of those, 17.2% were admitted to small bed size hospitals (SB), 28% to medium size bed hospitals (MB), and 54.8% to large bed size hospitals (LB). There was no statistically significant difference in age, gender, and race among groups. Majority of patients were white (SB 63.5%, MB 65.7%, LB 64.9%), male (SB 64.75, MB 62.4%, LB 61.7%), had Medicare (SB 37.3%, MB 36.7%, LB 36.9%), and were admitted to urban hospitals (SB 99.2 %, MB 97.5 %, LB 93.8 %). There was no significant difference in comorbidities between groups, except for EtOH use, significantly lower in the LB group. In-hospital mortality and length of hospital stay were significantly higher in the LB group. Regarding in-hospital complications, there was no significant difference in the incidence of SIRS, sepsis, cardiac arrest, need for pressor support, hepatic encephalopathy or need for tracheostomy between groups, but significantly higher incidence of shock, paralytic ileus, AKI, pleural effusion, venous thromboembolism, and requirement of ICU admission, mechanical ventilation, parenteral nutrition, and TIPS placement in the LB group was noticed.
Conclusion: In patients admitted for esophageal variceal bleeding, the mortality, length of stay, and incidence of most in-hospital complications is significantly higher in patients admitted to large bed size institutions compared to those admitted to smaller size hospitals, when adjusting for confounders. This could be related to more complex patients being referred to larger institutions seeking a higher level of care (see Table 1).

Table 1. Patient Comorbidities, In-hospital Complications, and In-hospital Mortality (all values expressed as percentages)

	Small bed size	Medium bed size	Large bed size	P value
Died while in the hospital	3.8	5.7	6.8	< 0.01
Lenght of stay > 5 days	34.3	37.9	44.2	< 0.01
Type 2 DM	31.8	33.1	31.9	0.57
Systolic heart failure	2.5	2.2	2.9	0.27
EtOH use	49.6	49.5	44.5	< 0.01
Tobacco use	1.2	0.6	0.8	0.23
Cannabis use	2.6	2.9	2.8	0.76
Opiate abuse	2.2	2.7	2.2	0.44
CKD stage IV	2.2	1.6	1.9	0.52
CKD stage V and ESRD	3.9	3.6	4.1	0.69
Chronic HBV	0.9	1.3	1.0	0.49
Chronic HCV	7.1	7.5	7.9	0.60
Hepatocellular carcinoma	4.6	4.5	5.2	0.37
MASLD/MASH	14.5	15.6	17.6	0.03
Alcoholic liver disease	61.9	61.3	59.0	0.11
IN-HOSPITAL COMPLICATIONS				
SIRS	1.1	2.0	4.3	0.21
Sepsis	0.5	1.1	2.5	0.04
Shock	1.6	2.9	6.8	< 0.01
Cardiac arrest	0.2	0.4	0.5	0.32
Pressor support	0.2	0.	1.1	0.03
Paralytic ileus	0.2	0.6	1.5	< 0.01
Parenteral nutrition	0.2	0.2	0.8	< 0.01
Mechanical ventilation	1.4	2.8	6.7	< 0.01
ICU admission	2.9	5.4	11.9	< 0.01
Acute Kidney Injury	4.9	8.3	18.4	< 0.01
Pleural effusion	4.1	5.0	7.0	< 0.01
Venous thromboembolism	2.4	2.2	3.5	< 0.01
Tracheostomy placement	0.1	0.	0.3	0.54
Hepatic encephalopathy	8.8	8.4	8.3	0.86
TIPS placement	0.9.01	2.2	2.7	< 0.01

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Single-Use vs Reusable Therapeutic Gastroscope Suctioning Ability

Adam J. Goodman, MD[1], Christina Cool, MPH[2], David Hoffman, MSPH, MBA[3].*
[1]NYU Grossman School of Medicine, Brooklyn, NY; [2]Ambu USA, New York, NY; [3]Ambu USA, Columbia, MD.

Introduction: Therapeutic gastroscopes (TGs) (≥ 3.7mm working channel (WC)) must be able to efficiently suction fluids and blood from the upper gastrointestinal tract to maximize patient safety. Innovation in this technology has remained relatively stagnant until recently with the creation of the first single-use (SU) TG with a 4.2mm WC. This study sought to compare the suctioning abilities of the SUTG versus reusable (RU) TGs currently being produced and available in the United States.
Methods: Two RUTGs (Olympus GIF-1TH190) and two SUTGs (Ambu aScope Gastro Large) were used to measure the time required to suction 500ml of a guar gum solution imitating the viscosities of blood (3.5 centipoise (cP)) and clotted blood (35 cP) with and without the presence of tools (10-Fr injection gold probe and resolution clip). One of the RUTGs (#1) was currently in use at a hospital and has been

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serviced only by Olympus. The guar gum solution was mixed and tested before each trial with a NDJ-5S Rotary Viscometer to ensure consistency. For each trial, the endoscope distal tip was placed at the 100ml of the graduated cylinder. Before each trial, each TG suctioned 250 ml of fresh water and received a new biopsy valve.

Results: For all scenarios, both SUTGs suctioned 500ml of fluid more efficiently than the RUTGs. The full results can be found in Table 1. The RUTGs were not able to successfully suction 500ml of the 35 cP fluid with the 10-Fr gold probe inserted in the WC. A one-minute volume test was performed for all scopes with the 10-Fr gold probe at both 3.5 and 35 cP. In these scenarios, the SUTGs on average suctioned 11.5x more 3.5 cP solution than the RUTGs and 25.6x more 35 cP solution than the RUTGs.

Conclusion: This study indicates that the Ambu aScope Gastro Large's suctioning is more efficient and consistent than an industry leading RUTG, as seen by the substantial difference in time required to suction under the same parameters. This superiority may allow for increased patient outcomes and procedural efficiencies to occur given the faster evacuation times and in the case of the gold probe, allow for suctioning with the tool inserted. Although endoscope companies claim that reusable endoscopes will be "like new" after repairs (if done by the manufacturer, such as with Endoscope #1), the variability seen with the RUTGs highlights the need for further research with a larger sample of reusable scopes at different ages to better understand variability in reusable scopes.

Table 1. Therapeutic gastroscope suction results

Suction Results Tool	Viscosity (cP)	GIF-1TH190 #1	GIF-1TH190 #2	aScope Gastro #1	aScope Gastro #2	GIF-1TH190 Average	aScope Gastro Large Average	Δ Average: Reusable vs. Single-use
Time to suction 500ml of fluid (mm:ss)								
None	3.5	00:37.3	00:59.3	00:21.9	00:23.5	00:48.3	00:22.7	00:25.6
	35	01:17.2	01:37.2	00:40.7	00:41.1	01:27.2	00:40.9	00:46.3
Resolution Clip	3.5	01:24.7	01:34.6	00:34.2	00:40.8	01:29.7	00:37.5	00:52.2
	35	06:34.8	06:52.5	01:44.5	01:52.4	06:43.6	01:48.5	04:55.2
Gold Probe*	3.5	16:03.5	NA	01:09.3	00:41.1	16:03.5	00:55.2	15:08.3
	35	NA	NA	04:35.8	04:31.3	NA	04:33.6	NA
60-second Flow Amount with 10 Fr Gold Probe (ml)								
Gold Probe	3.5	37	35	400	430	36	415	-379
	35	4	5	130	125	5	128	-123

*N/A indicates where the gastroscope was unable to suction 500ml of solution.

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Therapeutic Potential of Thalidomide in AVM-Related Gastrointestinal Bleeding: A Systematic Review

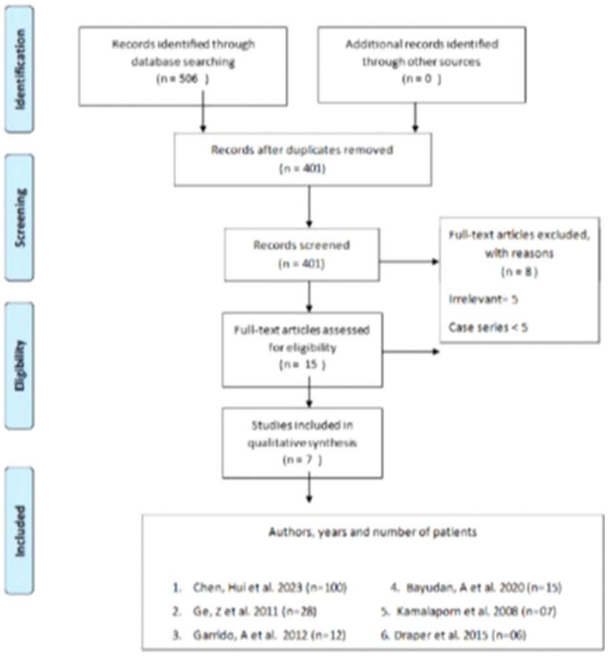
MD Junaid khan[1], Qamar Iqbal, MD[1], Huzaifa Khalid, MD[2], Zubair Ahmed, MBBS[3], Samia Siddiqui, MBBS[4], Adnan Younus, MD[1], Aamir Asif Khan, MBBS[5], Kunnal Patel, BS, MS[6].*
[1]Tidal Health, Salisbury, MD; [2]Tidal Health, Leesburg, VA; [3]Fmhcmd, Jaranwala, Punjab, Pakistan; [4]Tidal Health Peninsula Regional, Salisbury, MD; [5]University Hospital Kerry, Tralee, Kerry, Ireland; [6]Rowan-Virtua School of Osteopathic Medicine, Edison, NJ.

Introduction: The arteriovenous malformation (AVM) of the Gastrointestinal (GI) tract is the leading cause of occult GI bleeding and iron deficiency anemia, especially in older patients (> 50 years). Treatment of AVM-related GI bleeding could be challenging due to its location and recurrence. Different pharmacological and endoscopic treatment modalities are being utilized in this difficult-to-treat condition with limited success. We have conducted a systematic review to summarize and analyze the clinical efficacy of thalidomide in AVM-related GI bleeding.

Methods: We performed a literature search on four databases (PubMed, Embase, Scopus, and CINAHL) using MeSH terms "Angiodysplasia" AND "Thalidomide" from inception to 16 February 2024. After running the first and second screening of the data results by two independent authors in line with Preferred reporting items for systematic reviews and meta-analysis (PRISMA) guidelines. For our data generation and analysis, we selected two retrospective randomized control trials, two prospective randomized control trials, two case series (> 5 or more cases), and one open-labeled randomized control trial. (Figure 1).

Results: We selected seven studies. (Table 1). The total number of participants was 248. The median age was 63.5 years, and 35% (n=85) were males. The AVM was diagnosed by endoscopy/Colonoscopy or push enteroscopy. Primary outcomes and response rates were defined differently in all studies (Table 1). The highest response, 84%, in the form of blood transfusion reduction was reported by Bayudan et al. Similarly, in a randomized trial, Chen et al. Showed that 68.6% (n=35/51) of the participants getting 100 mg of thalidomide had reduced bleeding episodes; similarly, 51% (n=25/49) of patients who were treated with 50 mg of thalidomide also had decreased bleeding episodes. The lowest response rate in blood transfusion was reported by Kampalaporn et al. at 43%. As reported in most studies, common side effects were fatigue, constipation, rash, and neuropathy. Side effects did improve with a reduction in dose or cession of medication.

Conclusion: Thalidomide could potentially decrease bleeding episodes in recurrent GI bleeding from AVM.



[1043] **Figure 1.** Thalidomide role in Arteriovenous malformation related Gastrointestinal bleeding.

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