

Outcomes of Difficult Airway (DA) patients presenting with Upper Gastrointestinal Bleed (UGIB): 4-year retrospective study using National Inpatient Sample (2016 – 2019)

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Introduction

Difficult airway patients presenting with upper gastrointestinal bleeding present unique challenge due to increased risk of respiratory complications such as from aspiration or from airway obstruction during anesthesia for urgent upper endoscopy. Limited data are available regarding clinical outcomes in difficult airway patients presenting with Upper gastrointestinal bleed.

Methods and Materials

Using National Inpatient Sample databases from 2016 to 2019. We identified patients presenting with Upper gastrointestinal bleed, the population were then divided based on the presence and absence of difficult airway using appropriate ICD-10-CM/PCS codes. STATA 17.0 software was used for the analysis. Pearson's Chi-Square test was used to analyze categorical variable, whereas the student t-test was used to analyze continuous variables. Univariate and multivariate logistic regression was used to adjust for potential confounders. Primary outcome was in hospital mortality due to upper gastrointestinal bleed in patients with and without difficult airway.

TABLE 1: DEMOGRAPHIC CHARACTERISTICS AND OUTCOMES

	UGIB With DA, N (%)	UGIB Without DA, N (%)	P value
TOTAL (1555580)	140(0.000899)	1555440(99.99)	
DEMOGRAPHICS			
MEAN AGE (YEARS)	58.89±15.93	67.91±15.68	
GENDER (FEMALE) (%)	20.02 (20.2)	731212 (47.01)	0.005
COMORBIDITIES			
CHF	10(7.14)	372838(23.97)	0.037
ARRHYTHMIA	50 (35.71)	490275(31.52)	0.638
CHRONIC PULMONARY DISEASE	25(17.86)	362729(23.32)	0.477
OBESITY	20(14.29)	199407(12.82)	0.817
LIVER DISEASE	65(46.43)	266447(17.33)	<0.001
COAGULOPATHY	16(11.32)	213406(13.72)	<0.001
HYPERTENSION	80(57.84)	1202340(70.87)	0.096
ANEMIA	20(14.29)	29300(19)	0.538
PULMONARY CIRCULATION DISORDERS	5(3.5)	166277(10.69)	0.2233
RENAL FAILURE	15(10.71)	417949(26.87)	0.054
ETHNICITY			
CAUCASIAN (%)	104(74.07)	1079631(69.41)	
NON-CAUCASIAN (%)	36(25.93)	475,809(30.59)	
CHARLSON CO-MORBIDITY INDEX			
0-2	70(50)	777720(50)	
3 OR >3	70(50)	777720(50)	
PRIMARY OUTCOME			
MORTALITY (%)	45(32.14)	36708(2.36)	<0.001
SECONDARY OUTCOMES			
	Mean		P value
LENGTH OF STAY (DAYS)	6.035±5.02	4.288±4.45	0.062
TOTAL CHARGE (US\$)	27111	13183	<0.001

TABLE 2: IN PATIENT OUTCOMES IN DA GROUP PRESENTING WITH UGIB

Variables	Odds ratio	95% CI	P-value
In-patient mortality	5.06	1.62-15.81	<0.001
ALL EGD	0.425	0.131-1.378	<0.001
IR intervention	1.23	0.206-7.31	< 0.001
ICU Stay	34.641	13.61- 88.11	<0.001
Blood Products Transfusion	0.935	.408-2.14	<0.001
Blakemore tube insertion	0.95	.373-2.458	<0.001

References

Airway Management During Upper GI Endoscopic Procedures: State of the Art Review, Goudra et al Dig Dis Sci DOI 10.1007/s10620-016-4375-z (HCUP), H.C.U.P. National (Nationwide) Inpatient Sample (NIS). 2021 [cited 2021 07/26/2021]; Available from StataCorp, Stata Statistical Software: Release 17. 2021, College Station, TX: StataCorp LLC.

Results

Amongst total of 1555580 patients admitted with upper gastrointestinal bleed, 140 patients had diagnosis of difficult airway and 1555440 patients did not have difficult airway diagnosis, male gender and white ethnicity was predominant in both populations. The mean LOS was 6.035±5.02 days in difficult airway group, 4.288±4.45 in non-airway group, this result was statistically significant. The mean total hospitalization charges in difficult airway group were 27111\$, in the non-difficult airway group were 13183\$ and this was found to be statistically significant. There were 45(32.14%) and 36708(2.36%) mortality in patients with and without difficult airway diagnosis. The difference is statistically significant with OR:5.06, 95% CI: 1.62-15.81, and p <0.001. Odds of using IR intervention and ICU admissions were higher and EGD were lower in difficult airway group, found to be statistically significant, as shown in table 2.

Conclusion

Patient with diagnosis of difficult airway presenting with upper gastrointestinal bleed symptoms were younger, had higher healthcare utilization and were associated with higher inpatient mortality and complications.