

BACKGROUND AND HYPOTHESIS

- Hypoglycemia has been associated with poorer outcomes in hospitalized patients undergoing surgical interventions.
- In cholangitis, endoscopic retrograde cholangiopancreatography (ERCP) is often a critical adjunct to surgery, capable of diagnosing and treating various biliary and pancreatic pathologies.
- While technically less invasive than surgery, the effect of hypoglycemia on clinical outcomes of patients with cholangitis undergoing ERCP has not been elucidated

METHODS

- Data were extracted from the National Inpatient Sample (NIS) database from 2016-2019.
- Using the ICD-10-CM codes, patients diagnosed with cholangitis and underwent ERCP were identified.
- Baseline demographic data, comorbidities, in-hospital mortality, hospital charges, and hospital length of stay (LOS) were extracted and compared based on the presence or absence of hypoglycemia.
- Statistical analyses were done using t-test and Chi-squared analysis. A multivariate analysis for the mortality odds ratio (OR) was calculated to adjust for possible confounders.

TABLE 1 UNIVARIATE AND MULTIVARIATE ANALYSIS OF POTENTIAL FACTORS AFFECTING IN-HOSPITAL MORTALITY IN PATIENTS WITH CHOLANGITIS UNDERWENT ERCP

Variable	Univariate		Multivariate	
	OR (CI 95%)	P-value	OR (CI 95%)	P-value
Hypoglycemia	6.74 (5.56-8.17)	< 0.0001	6.71 (5.49-8.2)	<0.0001
Age > 65	1.41 (1.30-1.54)	< 0.0001	1.3 (1.19-1.42)	<0.0001
Female	1.02 (0.95-1.11)	0.46	0.96 (0.89-1.04)	0.430
Non-White	1.29 (1.19-1.40)	< 0.0001	1.32 (1.21-1.43)	<0.0001
Congestive heart failure	2.21 (2.02-2.42)	<0.0001	2.11 (1.91-2.32)	<0.0001
Obesity (BMI > 30)	0.81 (0.72-0.92)	0.001	0.82 (0.03-0.04)	0.001
Smoking	0.61 (0.55-0.67)	<0.0001	0.62 (0.56-0.68)	<0.0001

RESULTS

- A total of 256,540 patients with cholangitis underwent ERCP were identified, 2,810 of them had hypoglycemia during their hospitalization.
- The mean age of the hypoglycemia group was 64.41 years. Most patients were females (54%) and whites (57%). More patients in the hypoglycemia group had a history of alcoholism and congestive heart failure (CHF).
- Hypoglycemia was associated with higher odds of in-hospital mortality (OR 6.71, CI 5.49-8.2; p < 0.0001).
- In addition to hypoglycemia, age > 65 years, non-white race, and CHF were independently associated with higher mortality (Table 1).
- Moreover, patients with hypoglycemia had higher total hospital charges (\$87,147 vs. \$133,400; P < 0.0001) and a significant increase in the LOS (9.7 vs. 6.7 days; P < 0.0001).

CONCLUSIONS AND RECOMMENDATIONS

- Hypoglycemia may affect the metabolism of the heart, leading to myocardial ischemia and malignant arrhythmias.
- However, it is unclear if hypoglycemia represents a proxy for the severity of patient illness, as septic shock and renal insufficiency are common etiologies that may strongly impact mortality.
- Therefore, careful glycemic control during hospitalization should be practiced, as hypoglycemia serves as a poor prognostic indicator that should not be overlooked.