Influence of Frailty in Patients Undergoing Endoscopic Retrograde Cholangiopancreatography for Biliary Stone Disease: A Nationwide Study

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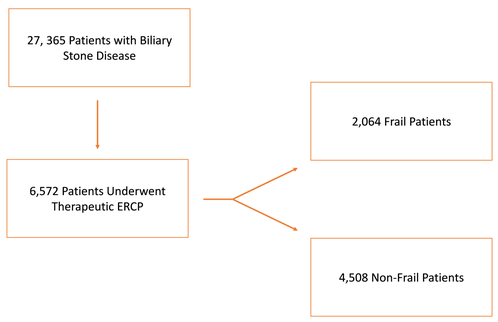
THE NEED

- Pancreaticobiliary diseases are common in the elderly.
- ERCP has been associated with high clinical and technical success, prior reports have demonstrated age-related specific outcomes, particularly in the elderly population.
- While age has been used as a predictor of clinical outcomes in ERCP, age alone is insufficient to assess risk-benefit tradeoffs properly
- To this end, frailty represents a state of vulnerability that should be considered when assessing the risks and benefits of therapeutic endoscopic procedures.
- We aim to determine the rate of readmissions and clinical outcomes using the validated Hospital Frailty Risk Score in patients undergoing endoscopic retrograde cholangiopancreatography (ERCP).

METHODS

- Using the National Readmissions Database, we identified patients with an admission diagnosis of cholangitis with obstructive stone or cholecystitis with obstructive stone from 2016 to 2019.
- Patients were included in the study if they were at least 18 years of age with a non-elective admission diagnosis of cholangitis with obstructive stone or cholecystitis with obstructive stone (ICD-10-CM codes 80.3 and K80.0) from January to November.
- Patients were determined to be of low frailty risk with a score of <5, while patients of medium to high frailty risk had a score of >5

ERCP is not a risk factor for readmission among frail patients, but is associated with procedure-related complications, higher healthcare utilization, and mortality.



N	Percent	Readmission in Non-Frail Patients
75	24.2%	Sepsis
37	11.9%	Acute renal failure
17	5.5%	Hypertensive heart and chronic kidney disease
13	4.2%	Pneumonitis
12	3.9%	Non-ST elevation (NSTEMI) myocardial infarction
12	3.9%	Urinary tract infection, site not specified
11	3.5%	Hypertensive heart disease with heart failure
11	3.5%	Sepsis due to Escherichia coli
11	3.5%	Other specified diseases of hard tissues of teeth
10	3.2%	Other specified sepsis.
N	Percent	Readmission in Frail Patients
14	7.9%	Sepsis
8	4.5%	Procedural complications
8	4.5%	Sepsis due to E. Coli
5	2.8%	Cholangitis
3	1.7%	Sepsis due to Methicillin resistant Staphylococcus aureus
3	1.7%	Gastrointestinal hemorrhage, unspecified.
3	1.7%	Sepsis due to Enterococcus
3	1.7%	Calculus of bile duct without cholangitis or cholecystitis without obstruction
3	1.7%	Acute cholecystitis.
3	1.7%	Calculus of bile duct without cholangitis or cholecystitis with obstruction

Age Groups			
Under 40	1.00		
40 - 49	1.30	0.102	[0.95 - 1.77]
50 - 59	1.26	0.115	[0.95 - 1.68]
60 - 69	1.17	0.300	[0.87 - 1.59]
70 - 79	1.11	0.553	[0.79 - 1.56]
80+	1.36	0.089	[0.95 - 1.93]

Variables	Odds Ratio	p-value	95% CI
Frailty risk			
Non-frail	1.00		
Frail	1.34	0.002	[1.12 - 1.61]

RESULTS

- During the study period, 27,365 patients who underwent ERCP were identified.
- Mean age of index admissions was 59.15 years and 54.75% were female.
- From the total cohort, 6,572 (24%) patients underwent therapeutic ERCP on initial admission; of these patients, 31.6% (n=2,064) were regarded as frail (risk score >5).
- Patients were 5.53 (95% CI 3.93 – 7.78, p <0.001) times more likely to undergo ERCP if the admitting hospital was in the top quintile for ERCP procedure volume.

RESULTS

- . From the total cohort, 6,572 (24%) patients underwent therapeutic ERCP on initial admission; of these patients, 31.6% (n=2,064) were regarded as frail (risk score >5).
- Following ERCP, frail patients did not have a statistically significant readmission rate (8.42% vs. 6.94%, respectively; p= 0.196).
- The performance of ERCP did not affect readmission rates (OR 1.14, CI: 0.94-1.38, p=0.085).
- Frail patients were likely to have longer lengths of stay, higher total cost, complications, and mortality risk.
- ERCP was not a significant contributor to mortality risk (HR 0.56, CI 0.31-1.03, p=0.063).