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Retrospective Study Assessing Rate of False Positive Endoscopic Retrograde Cholangiopancreatography Performed for Choledocholithiasis and Associated Complications

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Background

- Choledocholithiasis (CDL) refers to the presence of gallstones within the common bile duct (CBD).
- CDL is diagnosed and treated by endoscopic retrograde cholangiopancreatography (ERCP).
- ERCP is an invasive procedure that cannulates and retrieves gallstones in the CBD.
- 5-10% of patients who undergo ERCP develop post-ERCP pancreatitis.
- With minimal risks, EUS can be used to pre-screen patients for CDL.
- Pre-screening may decrease unnecessary ERCPs and thus decrease post-ERCP pancreatitis.

Problem Statement

A retrospective study has yet to be performed at LVHN to determine the rate of false positive ERCPs and their associated complications and thus no data exists to analyze if additional pre-screening prior to an ERCP would be beneficial in patients suspected of CDL.

Methods

Collect Patient Charts
- **Inclusion Criteria**:
  - Age > 18
  - Negative ERCP for CDL
- **Exclusion Criteria**:
  - ERCP performed not for CDL
  - Positive ERCP for CDL

Enter Data into RedCap Database
- Demographics
- Pre-ERCP labs/imaging
- CDL risk based on Table 1

Retrospective Chart Review
- Determine if post-ERCP pancreatitis developed
- Record lipase level, symptoms and imaging of post-ERCP pancreatitis

Analyze data
- Incidence of negative ERCP for CDL
- Incidence of post-ERCP pancreatitis for entire sample
- Incidence of post-ERCP pancreatitis based on CDL risk

Table 1: Risk Criteria Classification

CBD Dilated>6 mm	Total Bilirubin>1.5 mg/dl	
	Positive	**Negative**
Positive	High	Intermediate
Negative	Intermediate	Low

Results

Figure 1: Study Flowchart of Chart Review

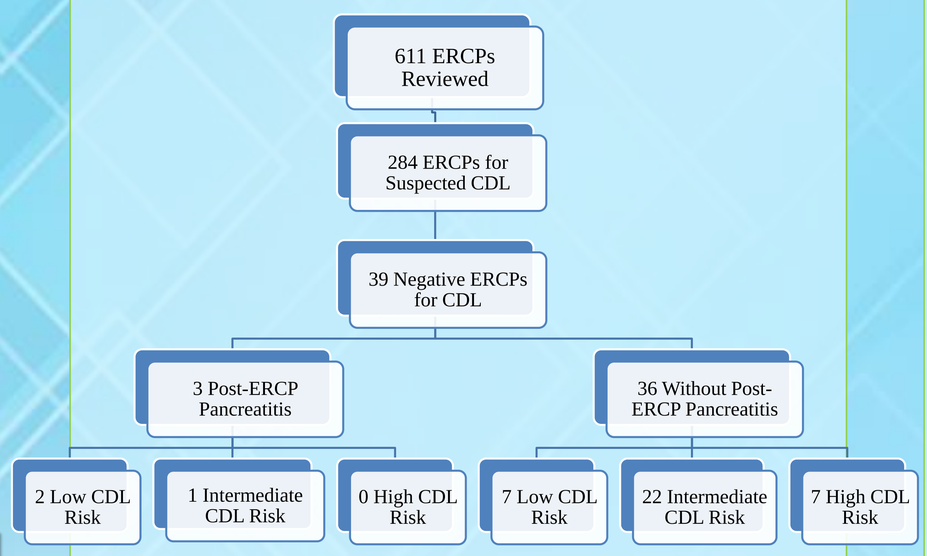

Figure 2: Incidence of Post-ERCP Pancreatitis

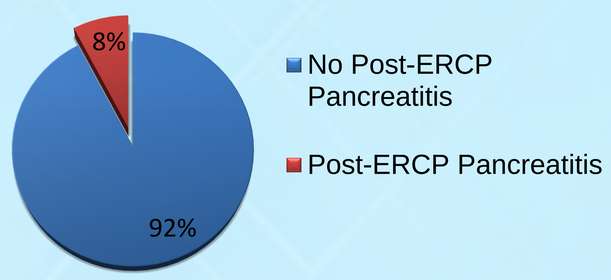

Figure 3: Number of Patients in Each CDL Risk Category

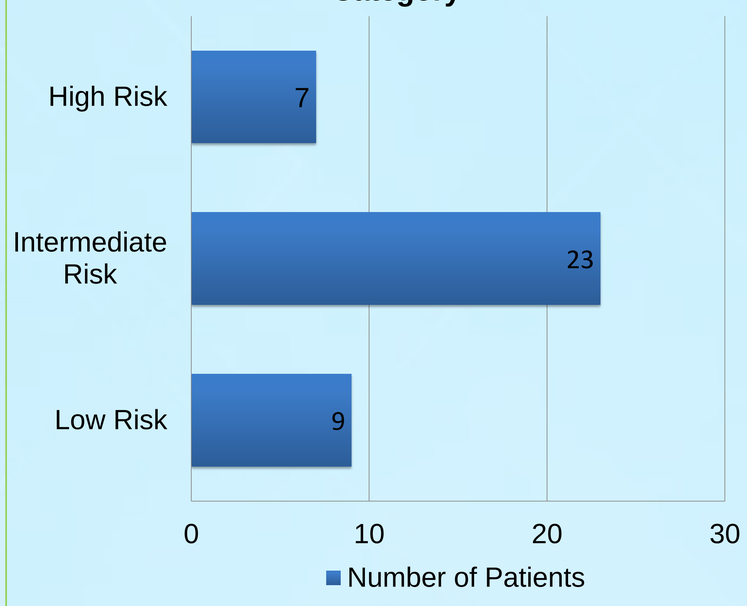

Table 2: Sub-Analysis of Patients Who Developed Post-ERCP Pancreatitis

	Pre-ERCP Data			Post-ERCP Data				
Patient Age	CDL Risk	CBD Dilation on US	Imaging	Lipase Level (U/L)	Epigastric Pain	Nausea	Vomiting	Imaging Confirming Pancreatitis
69	Low	No	MRCP, IOC	1071	Yes	Yes	Yes	Not Performed
27	Intermediate	Yes	EUS	22746	Yes	No	No	Not Performed
62	Low	No	IOC	8911	No	Yes	No	Not Performed

Discussion

- 39 patients (14%) had negative ERCPs, in which 3 patients (7.7%), who were low/intermediate CDL risk, developed post-ERCP pancreatitis.
- Length of stay (LOS) prolonged in 2 of the 3 patients (67%) who developed pancreatitis when compared to the mean LOS of 5.3 days of all patients with negative ERCPs (power 0.2).
- Extended LOS on average for post-ERCP complications is ~$6,000 for additional 2-3 days of hospitalization.
- No high risk patients developed post-ERCP pancreatitis.
- No significant difference (p>0.5) in patient characteristics or test results between patients who developed pancreatitis and those who did not.

Project Limitations:

1. Small sample size, resulting in low power.
1. 26 patient charts excluded due to ERCP being cancelled after EUS pre-screening ruled out CDL.

Conclusions

- Pre-screening with EUS for patients with low and intermediate CDL risk would provide cost-effective benefit by avoiding unnecessary ERCPs that may cause costly complications.
- **Why EUS?**
  1. High sensitivity (93-97%) & specificity (89-94%)
  1. Ability to be performed immediately prior to ERCP, limiting time for gallstone to pass between screening and ERCP
  2. Cost of EUS with ERCP comparable to cost of ERCP alone
- More data needed to determine if pre-screening would be beneficial for patients at high risk of CDL.

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