Incidence of Choledocholithiasis and Its Impact on Outcomes in Patients Hospitalized With Acute Cholecystitis: A Nationwide 5-Year Analysis

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INTRODUCTION: Patients with acute cholecystitis (AC) often present with laboratory and imaging findings suggestive of choledocholithiasis (CDL). There are no population studies to assess the incidence of CDL and its impact on outcomes in patients with AC. In this nationwide study, we examine the frequency of CDL in patients with acute cholecystitis, and examine the effect of choledocholithiasis on in-hospital mortality, costs, and 30-day outcomes.

METHODS: We analyzed the nationwide readmission database (NRD) from 2010 through 2014. We identified all admissions of adult patients with the principal diagnosis of acute cholecystitis. We compared hospitalizations with acute cholecystitis and choledocholithiasis (AC & CDL) with those with AC alone (AC group). Bivariate analysis was performed to compare the demographics, characteristics, and in-hospital and 30-day outcomes between the two groups.

RESULTS: There were a total of 552,207 hospitalizations for acute cholecystitis, of which 408,847 (74%) had acute cholecystitis alone (AC group) and 143,360 (26%) had coexistent choledocholithiasis (AC & CDL group). Characteristics of the groups are shown in Table 1. Patients with AC & CDL were more likely males and older than 65 (P < 0.0001). Patients with AC & CDL were more likely to have abnormal liver enzymes (1% vs. 0.7%), cholangitis (4.4% vs. 1.1%), acute pancreatitis (11.6% vs. 7.7%) and septic shock (1.7% vs. 1.1%, all comparisons P < 0.0001). ERCP was performed more commonly in AC & CDL group compared to the AC group (26.7 vs. 3.7%, P < 0.0001). Same admission cholecystectomy was more common in AC group (84% vs 38%, P < 0.0001). Patients with AC & CDL had longer length of stay (4.9 vs. 4.1 days, P < 0.0001) and higher hospital costs ($15,966 vs $15,202, P < 0.0001). The AC & CDL group had higher in hospital and 30-day mortality (4.5% vs. 1.2%, P < 0.0001) and 30-day readmission (13.6% vs. 8%, P < 0.0001), compared to the AC group.

CONCLUSION: Approximately one in four patients with acute cholecystitis has coexistent choledocholithiasis. Presence of choledocholithiasis in acute cholecystitis patients is associated with increased length of stay, hospitalization costs, and 30-day mortality and readmissions. Further studies are needed to develop predictor models to identify coexisting CDL in patients with AC for timely diagnosis and optimizing management aimed at improving outcomes in this high risk subset of patients.
studies have shown that multi-organ failure and death are frequent complications of AP in transplanted patients. Most of the studies individualize their findings based on a specific organ transplanted (such as kidney or heart or liver, etc.). The aim of our study was to evaluate the outcomes of patients with acute pancreatitis with a history of any solid organ or bone marrow transplant using a national database.

METHODS: We performed a retrospective cross-sectional analysis using the National Inpatient Sample (NIS) database from 2014. We included all patients with acute pancreatitis (ICD 9 Code: 577.0). Next, we divided the AP patients into two groups - one with history of a transplant and those without a history of transplant. We compared the outcomes of both groups. Both univariable and multivariable analyses were performed to assess the risk factors and outcomes of patients with acute pancreatitis in post transplant patients.

RESULTS: We analyzed more than 35 million US hospitalizations in 2014 out of which 279,145 were acute pancreatitis related hospitalizations. There were 1,265 hospitalizations for acute pancreatitis in previously transplanted patients, an incidence of 4.53%. The mortality rate of AP was similar in non-transplanted patients (0.66%) than in transplanted patients (0.4%). The mean length of stay (4.62 days vs. 4.61 days) and mean total charges ($35,723 vs. $31,202) were similar in acute pancreatitis for transplant patients.

[67] Figure 1. Study Methodology (Protocol available at http://www.crd.york.ac.uk/PROSPERO/display_record.php?id=CRD42018117189).

[67] Figure 2. Radiologic incidence and Pathologic incidence of advanced pathology among HRIs with normal baseline.

[67] Figure 3. Radiologic Progression and Histologic Progression among HRIs with screen-prevalent lesions.
and non-transplant patients. Multivariable regression analysis showed that multigorgan dysfunction risk among AP patients was significantly higher if they had a history of transplant (OR of 2.27, P < 0.01). CONCLUSION: Our study showed that AP generally has similar outcomes in transplant and non-transplant patients even with a higher risk of multigorgan failure. More data is needed to determine if this holds true for subjects who develop AP in the immediate post transplant period.

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Comparing Radiation Time in Radiology Technologist-Controlled Versus Endoscopist-Controlled Fluoroscopy During Endoscopic Retrograde Cholangiopancreatography

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INTRODUCTION: The necessary use of fluoroscopy during endoscopic retrograde cholangiopancreatography (ERCP) involves radiation exposure to the endoscopy staff and patients. Radiation technologies (RT) are formally trained to minimize exposure whereas endoscopists are not. The aim of this study was to primarily determine whether involvement of RT reduced fluoroscopy time and secondarily to identify independent predictors of increased fluoroscopy time during ERCP.

METHODS: We conducted a retrospective review of ERCPs performed between August 2017-September 2018 within a single healthcare system. This system is unique in that it has 2 endoscopy units, both of which perform high-volume, high-level ERCPs. Four interventional endoscopists on faculty perform ERCPs at both centers. In one unit (site 1) the fluoroscopy units are controlled by the endoscopist and in the second (site 2) a RT controls it at the direction of the endoscopist. Procedure notes were reviewed for demographic and procedural data. Univariate analyses were used to assess differences among individual variables by site using Chi-squared and Mann-Whitney U test. Secondary comparisons included independent predictors of increased fluoroscopy time as assessed by multivariable linear regression. To minimize confounding, only ERCPs performed by endoscopists who work at both centers were analyzed.

RESULTS: A total of 949 ERCPs were performed during the study period and 605 met inclusion criteria. There was no significant difference between fluoroscopy times in ERCPs that were RT-controlled (mean 372.7 seconds, st. dev. 391.5) versus endoscopist-controlled (334.2 seconds, st. dev. 350.4). When controlling for confounding variables in the multivariable model, this difference remained statistically nonsignificant. Independent predictors of high fluoroscopy time in the multivariable model include trainee involvement, ERCP-level 3 complexitiy, biliary injury obstruction, technically unsuccessful ERCPs, stent placement, balloon or catheter dilation, mechanical and electromechanical lithotripsy, ductoscopy, and outpatient procedures (Table 2).

CONCLUSION: Involvement of a trained RT during ERCP does not decrease fluoroscopy time. Several other fixed and modifiable variables were independently associated with high fluoroscopy times, including trainee involvement. These results stress the importance of formal fluoroscopy education early in an interventional endoscopy fellowship.

INTRODUCTION: Acute pancreatitis (AP) is one of the most common conditions affecting the elderly. Older age is recognized as a marker of severity in most severity scoring systems. In this study, we aim to compare the demographics, clinical and laboratory variables, and outcomes between elderly (age ≥65 years) versus younger (age <65 years) patients with AP. We also aimed to determine the factors associated with increased hospital length of stay (LOS) in elderly individuals admitted with AP.

METHODS: For this retrospective study, our hospital’s inpatient database was used to identify patients with AP between January 2015 to August 2018. Group differences were tested with Chi-square for categorical variables and t test/quantile regression analysis for continuous variables. After the univariate analysis was conducted and the clinical relevance of significant variables was assessed, the multivariate accelerated failure time model was used to determine factors affecting LOS.

RESULTS: Among 277 subjects with AP, 64 (23%) were elderly (≥65 y, mean 74.3 ± 9 y). Compared to the younger population (age <65 y, mean 42.5 ± 9 y), elderly patients were more associated with Type 2 DM (40.6% vs 23.5%, P = 0.004), hypertension (78.1% vs 29.1%, P < 0.001), congestive heart failure (10.9% vs 1.9%, P = 0.001), CKD (12.5% vs 2.8%, P = 0.002), malignancy (23.4% vs 5.4%, P < 0.001), coronary artery disease (15.6% versus 2.8%, P < 0.001), and COPD (17.2% vs 4.2%, P < 0.001) (Table 1). Elderly patients had a higher blood urea nitrogen, creatinine, amylase, and low albumin levels at the time of admission compared to the younger population. The mean LOS was higher in the elderly population (5.2 ± 0.7 vs 4.5 ± 0.2 days, P = 0.037) compared to the younger individuals. Presence of pancreatitis related complications, the performance of cholecystectomy and endoscopic interventions (EUS and ERCP) during the same admission, and higher serum creatinine at the time of admission were independently associated with increased LOS (Table 2).

CONCLUSION: Older age in itself is not a cause of increased mortality or morbidity in AP. 2. Comorbid conditions are commonly associated with older age but not significantly associated with increased LOS in AP. 3. The factors associated with increased LOS in elderly AP patients include the presence of pancreatitis related complications, the performance of cholecystectomy and endoscopic interventions during the same admission, and higher serum creatinine at the time of presentation.

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Appraisal of Follow-up Protocols and Outcomes of High Risk Pancreatic Cancer Surveillance Program: A Systematic Review and Meta-Analysis

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REFERENCES: 1. Older age is not a cause of increased mortality or morbidity in AP. 2. Comorbid conditions are commonly associated with older age but not significantly associated with increased LOS in AP. 3. The factors associated with increased LOS in elderly AP patients include the presence of pancreatitis related complications, the performance of cholecystectomy and endoscopic interventions during the same admission, and higher serum creatinine at the time of presentation.

Table 2. Oesophageal mortality, length of stay and cost of hospitalization for pancreatic pseudocysts in acute vs chronic pancreatitis

<table>
<thead>
<tr>
<th>Pseudocyst with Acute Pancreatitis</th>
<th>Pseudocyst with Chronic Pancreatitis</th>
<th>P value</th>
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<tbody>
<tr>
<td>Bilirubin (mg/dL)</td>
<td>2.58%</td>
<td>1.64%</td>
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<tr>
<td>Length of Stay (days)</td>
<td>11</td>
<td>7</td>
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<tr>
<td>Cost ($USD)</td>
<td>23,348</td>
<td>14,480</td>
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