Predictors of Post ERCP Pancreatitis: Analysis of More Than Half a Million ERCPs Performed Nationwide Over the Last 15 Years
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Introduction: Post ERCP Pancreatitis (PEP) is the most common complication following ERCP with a report rate of 2-5%. Major predictors of PEP include the type of intervention performed during ERCP. However, it is unknown if demographic factors such as race and ethnicity could increase the risk of PEP. Our aim was to identify such demographic factors after controlling for the type of intervention during ERCP.

Methods: We used the Nationwide Inpatient Sample (NIS) for the years 2000-2014. Adults patients, who were admitted with biliary obstruction without acute pancreatitis based on the record’s primary and secondary diagnosis and had an inpatient ERCP, were identified using ICD9 codes. PEP was defined as having a subsequent diagnosis of acute pancreatitis after an ERCP. ERCP was classified into diagnostic, biliary, pancreatic, and both. Demographic information on age, gender, race, insurance status and geographic region was collected. Comorbidities were summarized by the Charlson comorbidity index. Rates of PEP were calculated and compared across the investigated predictor. Multivariate logistic analysis was used to identify independent predictors of PEP. Results: A total of 654,394 patients with median age of 59 years, and 66% females. Overall PEP rate was 5.4%. Asians and Hispanics had a higher rate of PEP (10% and 7.9% respectively) compared to Caucasians and African Americans (4.9% and 5% respectively, p<0.001). Patients who had both biliary and pancreatic interventions had a higher rate of PEP (8.3%) compared to diagnostic ERCPs (4.5%, p<0.001). PEP rates varied significantly across the type of ERCP intervention (Figure). Multivariate analysis showed that after controlling for the ERCP intervention, Asians and Hispanics continued to have higher odds of PEP. Although rural hospitals had the lowest PEP rate (4.2%), multivariate analysis after adjusting for the level of ERCP intervention showed that patients who were admitted to urban-teaching hospitals had the lowest odds of developing PEP (OR 0.9, p<0.001). Rates of PEP were compared across the investigated predictors. Multivariate logistic analysis was used to identify independent predictors of moderate to severe PEP.

Conclusion: In this nationwide study, patients of Asian and Hispanic race had significantly higher rates of PEP compared to non-teaching hospitals. Urban-teaching hospitals showed lower PEP rates compared to non-teaching likely related to better patient selection and pretest probability assessment.

Clinical Outcomes and Predictors of Severity of Post-ERCP Pancreatitis - A Nationwide Analysis
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Introduction: Post ERCP Pancreatitis (PEP) is the most common complication following ERCP procedure. PEP is mostly mild, but moderate or severe pancreatitis can lead to prolonged ICU admission and death. Our aim was to identify predictors of moderate and severe PEP and its outcomes.

Methods: We used the Nationwide Inpatient Sample (NIS) for the year 2000-2014. Adults patients who were admitted with biliary obstruction without acute pancreatitis based on the record’s primary and secondary diagnosis and had an inpatient ERCP were identified using ICD9 codes. PEP was defined as having a subsequent diagnosis of acute pancreatitis after the ERCP. ERCP was classified into diagnostic or intervention based on ICD9 procedure codes. Rates of PEP and diagnostic ERCP by year were calculated and then stratified by hospital location-tracking status. The trends were examined using the Jointpoint Regression Program. We reported the Annual Percentage Change (APC) with corresponding 95% confidence intervals.

Results: We included 654,394 patients with median age was 59 and 66% females. 49% were admitted to urban-teaching, 45% to urban-nonteaching, and 7% to rural hospitals. Rates of overall rate of PEP showed a steep increase in the rate between 2000-2005 from 3.7% to 6.6% with APC of +11.5% (+4% to +19%, p<0.05) followed by a period of stabilization of the annual rate between 2006-2014 with an average rate of 5.7% (trend p value 0.25). Analysis of PEP rates across hospital types showed the same steep increase between 2000-2005 followed by divergence of the annual rate around 2006-2008 with urban-nonteaching reporting consistently higher PEP rates (average of 6.7%) compared to urban-teaching (average 4.9%) and rural (average 3.9%) hospitals for the period 2006-2014 (p<0.001). (Figure 1). The diagnostic ERCP rate steadily decreased from being 19.5% in 2000 to 7.6% in 2014 (APC -6.3, -6.9 to -5.6, p<0.001, (Figure 2).

Conclusion: PEP rate has been significantly increasing early in the 2000s due to decreasing rates of diagnostic ERCP with the improvement of imaging modalities. The rate had stabilized around 5.7% since 2006 with significant variations across the hospital types. PEP rates among rural hospitals likely due to referral of complex cases to urban centers. Teaching hospitals showed lower PEP rates compared to non-teaching likely related to better patient selection and pretest probability assessment.