Native vs Non-Native Papilla: Defining and Mitigating the Post-ERCP Pancreatitis Risk

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Introduction

- Endoscopic retrograde cholangiopancreatography (ERCP) is a widely used procedure for the diagnosis and management of biliary and pancreatic diseases
- Post-ERCP pancreatitis (PEP) is the most common adverse event and occurs in approximately 5-10% of patients undergoing ERCP[1]
- It has been been proposed that the anatomy of the native papilla increases the risk of developing PEP[2-4]. However, this risk has not been quantified and strategies to prevent PEP in this subset of patients is undefined

Methods

- As part of an ongoing randomized clinical trial at Los Angeles County Hospital (Clinicaltrials.gov: NCT03087656), we evaluated patients undergoing ERCP to capture procedural factors including the papillary anatomy, procedural complexity score[5], use of rectal indomethacin, and volume of fluids administered for patients included and excluded from the trial
- The primary predictor was the presence of a native or a non-native major duodenal papilla. The primary outcome was the development of PEP
- We used a bivariate regression model to determine whether prophylactic rectal indomethacin and aggressive hydration (>3.5L of fluids over 24 hours) mitigated the risk of PEP

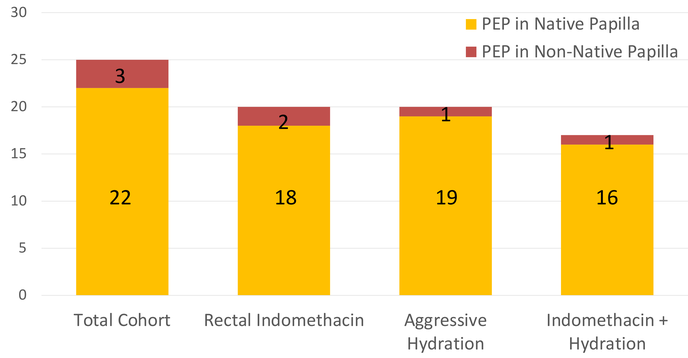
Results

- We evaluated 416 cases of ERCP from October 2019 to December 2021. PEP developed following 25 procedures (overall incidence 6.01%), of which 22 had a native papilla (unadjusted OR 4.1; 95% CI 1.3-12.8)
- On multivariate analysis adjusting for the procedural complexity score, patients with a native papilla were more likely to develop PEP (OR 5.4; 95% CI 1.6-17.9)
- Native papilla remained a compelling risk factor in patients who received prophylactic measures including rectal indomethacin (adjusted OR 6.0; 95% CI 1.2-30.6), aggressive hydration (adjusted OR 7.8; 95% CI 1.6-39.0), and the combination of both (adjusted OR 9.0; 95% CI 1.1-77.3)

Table 1: Odds Ratio of Post-ERCP Pancreatitis in Native Versus Non-Native Papilla; Total Cohort and Subset Receiving Prophylactic Measures

	N	Univariate OR (95% CI)	Multivariate OR (95% CI)
Total Cohort	416	**4.1 (1.3-12.8)**	**5.4 (1.6-17.9)**
Rectal Indomethacin	268	3.8 (0.9-16.7)	**6.0 (1.2-30.6**)
Aggressive Hydration	283	**6.0 (1.2-29.4)**	**7.8 (1.6-39.0)**
Indomethacin + Hydration	211	5.7 (0.7-44.1)	**9.0 (1.1-77.3)**

Figure 1: Post-ERCP Pancreatitis in Native versus Non-Native Papilla



Discussion

- Patients with a native papilla are significantly more likely to develop PEP regardless of procedural complexity
- This association remained in the setting of prophylactic measures including rectal indomethacin, aggressive hydration, and the combination of both
- This study emphasizes the need to develop and study preventative measures for PEP particularly in patients undergoing their first ERCP

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