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# Disparity Outcomes in Patients Undergoing Pancreas Surgery at an Urban Tertiary Care Center

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# E95

**Delay in Treatment Initiation Increases Mortality in Non-Metastatic Extrahepatic Bile Duct Cancer**

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INTRODUCTION: Time from diagnosis to treatment initiation for many cancers is lengthening. During the COVID pandemic, many institutions were forced to postpone cancer treatment to reallocate resources, despite the unclear impact of treatment delays. This study sought to investigate the association between time to treatment initiation (TTI) and overall survival in patients with hepatopancreatobiliary (HPB) cancers. METHODS: The National Cancer Database (NCDB) was queried for patients diagnosed with de novo cancers of the pancreas, liver, and intrahepatic and extrahepatic bile ducts between 2004 and 2017. Kaplan-Meier survival analysis and Cox regression were used to investigate the association between TTI and overall survival for each cancer type, stratified by stage. Multivariable linear regression identified factors associated with longer TTI. RESULTS: Of 318,931 patients with HPB cancer, median TTI across all cancers was 31 days, ranging from 26 days for pancreas cancer to 48 days for liver cancer. Longer TTI was associated with increased mortality in patients with stages I, II, and III extrahepatic bile duct (EHBD) cancer (Figure 1), and stage I pancreatic adenocarcinoma. Compared to TTI of 3 to 30 days, the risk-adjusted hazard ratios for stage I EHBD cancer for TTI 31 to 60, 61 to 90, and ≥90 days were 1.17 [95% CI 1.07–1.29], 1.39 [1.21–1.59], and 1.63 [1.40–1.90], respectively. For the same time frames, hazard ratios in stage I pancreatic cancer were 1.08 [1.03–1.13], 1.19 [1.11–1.28], and 0.99 [0.90–1.09], respectively. Factors most strongly associated with increased TTI for all cancers included treatment with radiation only (β = +14.1 days, p< 0.001), early stage disease (+13.8 days for stage I vs. stage IV, p< 0.001), Black race (+4.4 days, p< 0.001), Hispanic ethnicity (+4.2 days, p< 0.001), and treatment in the West (+3.9 days vs. Northeast, p< 0.001). CONCLUSIONS: Delayed initiation of definitive therapy leads to increased mortality in stage I-III EHBD and stage I pancreatic cancer. Some patients, including Blacks and Hispanics, are more likely to experience delayed care. Treatment initiation for these cancers should be expedited, and pandemic-related postponements should be avoided if possible.
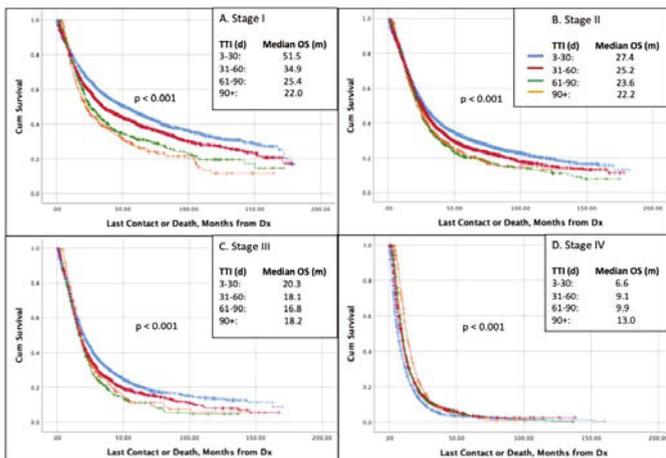


Figure 1. Kaplan-Meier survival analysis for patients with stage I (A), II (B), III (C), and IV (D) extrahepatic bile duct cancer, stratified by time from diagnosis to initiation of definitive therapy.

# E96

**Disparity Outcomes in Patients Undergoing Pancreas Surgery at an Urban Tertiary Care Center**

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INTRODUCTION: Previous studies have shown significant disparities in pancreas cancer outcomes in African American (AA) compared to non-AA patients. Pancreas surgery continues to be associated with significant morbidity, however, there is little reported data on pancreas surgical outcomes by race. We sought to evaluate how race would affect surgical outcomes in an urban tertiary care center for patients undergoing pancreas surgery. METHODS: A retrospective single-center analysis of patients undergoing pancreas surgery between January 2013 and September 2021 was performed. Patient demographics and post-surgical complications were collected and stratified by race. Area Deprivation Index (ADI) was used to determine patient socioeconomic status. Charlson Comorbidity Index (CCI) was calculated for comorbidities. Clavien-Dindo (CD) complications, as well as postoperative pancreatic fistula (POPF), delayed gastric emptying (DGE) and postpancreatectomy hemorrhage (PPH) were evaluated. Patient reoperation, readmission, and mortality in the 30- and 90- day period were collected and univariate and multivariate analyses were performed. RESULTS: Among 461 patients, 82% (N = 378) were non-AA and 18% (N = 83) were AA. Age and sex were found to be significantly different between the two groups, while ADI and CCI were not. Length of stay (LOS), POPF, PPH, PPH grade C and intra-abdominal abscess (IAA) were found to be significant on univariate analysis in the AA cohort. On multivariate analysis, LOS (OR 4.0; 95% CI 2.0-5.7; p < 0.001), POPF (OR 0.6; 95% CI 0.4-1.0; p = 0.043), PPH (OR 0.5; 95% CI 0.2-0.9; p = 0.022), PPH grade C (OR 0.2; 95% CI 0.1-0.7; p = 0.017) and IAA (OR 0.4; 95% CI 0.2-0.9; p = 0.017) were still significantly higher in the AA cohort. CONCLUSIONS: AA patients undergoing pancreas surgery were noted to have a longer LOS, higher incidence of POPF, PPH and IAA compared to non-AA patients. However, no significant difference was seen in reoperation rates, major CD complications, or 30- and 90-day readmission. Elucidating patient selection, tumor biology, and preoperative treatment algorithms may shed additional insight on the differences in surgical outcomes in this particular patient cohort.

Table. Patient demographics, pathologies, surgery types and outcomes

| Variable | Overall (n = 461) | non-AA (n = 378) | AA (n = 83) | p Value |
|---|---|---|---|---|
| Age | 62.3 ± 11.6 | 62.9 ± 11.3 | 59.2 ± 12.5 | **0.009** |
| Female sex | 218 (47.3%) | 169 (44.7%) | 49 (59.0%) | **0.018** |
| BMI | 28.1 ± 6.0 | 27.9 ± 5.8 | 28.7 ± 6.9 | 0.254 |
| Low ADI | 181 (39.3%) | 155 (41.0%) | 26 (31.3%) | 0.102 |
| High ADI | 280 (60.7%) | 223 (59.0%) | 57 (68.7%) | 0.102 |
| CCI | 1.3 ± 1.5 | 1.3 ± 1.5 | 1.3 ± 1.6 | 0.900 |
| Prior abdominal surgery | 266 (57.7%) | 223 (59.0%) | 43 (51.8%) | 0.230 |
| Preop CA 19-9 for malignant cases | 116.5 ± 617.4 | 90.5 ± 225.0 | 243.0 ± 1409.1 | 0.385 |
| | | | | |
| Surgical procedure | | | | 0.845 |
| Pancreaticoduodenectomy | 331 (71.8%) | 270 (71.4%) | 61 (73.5%) | |
| Distal Pancreatectomy & Splenectomy | 116 (25.2%) | 96 (25.4%) | 20 (24.1%) | |
| Splenic-Preserving Distal Pancreatectomy | 10 (2.2%) | 9 (2.4%) | 1 (1.2%) | |
| Total Pancreatectomy | 4 (0.9%) | 3 (0.8%) | 1 (1.2%) | |
| | | | | |
| Final Surgical pathology | | | | 0.331 |
| Carcinoma | 298 (64.6%) | 247 (65.3%) | 51 (61.4%) | |
| No residual tumor | 4 (0.9%) | 4 (1.1%) | 0 (0.0%) | |
| Neuroendocrine tumor | 66 (14.3%) | 49 (13.0%) | 17 (20.5%) | |
| Mucinous and cystic neoplasms | 60 (13.0%) | 50 (13.2%) | 10 (12.0%) | |
| Dysplasia and inflammatory changes | 37 (8.0%) | 32 (8.5%) | 5 (6.0%) | |
| | | | | |
| Operative time (mins) | 370 ± 120 | 365 ± 118 | 391 ± 129 | 0.079 |
| EBL (mL) | 371 ± 388 | 377 ± 405 | 341 ± 294 | 0.463 |
| Intra-op blood transfusion | 42 (9.1%) | 37 (9.8%) | 5 (6.0%) | 0.281 |
| Length of stay (days) | 11 ± 8 | 11 ± 6 | 14 ± 13 | **0.009** |
| Reoperation (within 90d) | 22 (4.8%) | 16 (4.2%) | 6 (7.3%) | 0.238 |
| | | | | |
| Clavien-Dindo complications ≥ 3 | 110 (23.9%) | 87 (23.0%) | 23 (27.7%) | 0.364 |
| POPF | 117 (25.4%) | 88 (23.3%) | 29 (34.9%) | **0.027** |
| DGE | 35 (7.6%) | 29 (7.7%) | 6 (7.2%) | 0.885 |
| PPH | 49 (10.6%) | 34 (9.0%) | 15 (18.1%) | **0.016** |
| Intra-abdominal abscess | 46 (10.0%) | 32 (8.5%) | 14 (16.9%) | **0.021** |
| | | | | |
| Readmission 30 days | 69 (15.0%) | 53 (14.0%) | 16 (19.3%) | 0.224 |
| Readmission 90 days | 80 (17.4%) | 60 (15.9%) | 20 (24.1%) | 0.075 |
| | | | | |
| ER visits 30 days | 29 (6.3%) | 21 (5.6%) | 8 (9.8%) | 0.160 |
| ER visits 90 days | 47 (10.2%) | 36 (9.7%) | 11 (13.4%) | 0.093 |
| | | | | |
| Mortality 30 days | 2 (0.4%) | 1 (0.3%) | 1 (1.2%) | 0.328 |
| Mortality 90 days | 4 (0.9%) | 4 (1.0%) | 0 (0.0%) | 1.000 |