Outcomes in invasive IPMN and sporadic pancreatic ductal adenocarcinoma in resected patients. Cohort analysis of the National Cancer Database (NCDB)

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Introduction

- Controversy exists regarding outcome of adenocarcinoma arising from IPMN (inv-IPMN), compared to sporadic pancreatic adenocarcinoma (PDAC)¹.
- Existing data are conflicting regarding prognosis.
- Prior database studies performed predate existence of IPMN as distinct ICD-O code.²

Methods

- NCDB queried 2004 onwards for resected inv-IPMN or PDAC
- Excluded those treated with neoadjuvant therapy
- Survival estimates stratified by AJCC stage 7th ed
 - Matched exactly by age, gender, Charlson-Deyo score

Results

- In unmatched cohorts, inv-IPMN patients present older, with larger tumors, but less frequently with positive lymph nodes
- Analysis of matched groups showed survival was improved at all stages in inv-IPMN versus PDAC
- The effect was less pronounced for node positive disease, and survival curves were noted to converge at later time points

Demographic (n)	PDAC (12083)	Inv-IPMN (461)
Age (mean, SD)	66.6 (10.5)	68.6 (10)
Gender (Male)	50.8%	54.7%
Tumor size (mean, SD)	3.5 cm (2.4)	4.0 cm (4.6)
Node positivity	67.7%	25.2 %
Type of pancreatic resection		
Partial/Distal	14.8%	20%
Whipple	73.1%	61.8%
Total Pancreatectomy	12%	18.2%
30 day Mortality	3.8%	4%
90 day Mortality	7.5%	6.3%

Table 1. Demographic information of unmatched patient cohorts

References

1: Koh YX, et al. Systematic review and meta-analysis comparing the surgical outcomes of invasive intraductal papillary mucinous neoplasms and conventional pancreatic ductal adenocarcinoma. Ann Surg Oncol. 2014 Aug;21(8):2782-800.

2: Wasif N, et al. Invasive intraductal papillary mucinous neoplasm versus sporadic pancreatic adenocarcinoma: a stage-matched comparison of outcomes. Cancer. 2010 Jul 15;116(14):3369-77.

Fig 1. KM survival estimates of inv-IPMN and PDAC stratified by stage

Stage	Cohort (N)	5-year survival (95% CI)
IA	PDAC (214)	44.9% (37.2 - 54.2%)
	inv-IPMN (76)	73.5% (62.9 - 85.9%)
IB	PDAC (388)	27.6% (22.5 – 33.8%)
	inv-IPMN (118)	60.6% (50.6 – 72.6%)
IIA	PDAC (590)	23.3% (19.3 – 28.1%)
	inv-IPMN (63)	40.1% (27.9 – 57.6%)
IIB	PDAC (3160)	11.0% (9.6 – 12.6%)
	inv-IPMN (97)	10.0% (4.2 – 23.9%)

Table 2. # Multivariate cox regression estimate of 5 year survival in matched cohorts

Stage	Hazard ratio (PDAC as ref)	p value
IA	0.46 (0.28 - 0.76)	0.002
IB	0.32 (0.23 – 0.46)	0.000
IIA	0.67 (0.46 – 0.97)	0.036
IIB	0.74 (0.58 – 0.96)	0.022

Table 3. Hazard ratios comparing 5 year survival of inv-IPMN and PDAC (reference)

Conclusions

- Adenocarcinoma of the pancreas that arises in the setting of IPMN appears to have improved prognosis stage for stage when compared to PDAC
- This effect is less prominent in node positive disease
- This additional information may help stratify risk in early stage disease