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Surgery vs Surveillance for Well-Differentiated Pancreatic Neuroendocrine Tumors (Pan NETs): An Eleven-year Analysis of the National Cancer Data Base (NCDB)

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BACKGROUND: Pan NETs are rare group of tumors that comprise 1-2% of pancreatic tumors. Although resection is usually recommended, optimal management is still controversial. NCCN and ENETS suggest different size cutoffs for non-surgical options for small Pan NETs (NCCN < 1cm, ENETS < 2cm). Our study aim is to evaluate surgical intervention versus active surveillance in non-metastatic Pan NETs.

METHODS: Using the National Cancer Data Base (NCDB), we identified 5057 patients diagnosed with well-differentiated Pan NETs between 2004 and 2015. Patient's clinicopathologic characteristics, treatment modalities, and overall survival (OS) were analyzed using frequency statistics, chi-square, and Kaplan-Meier curves. The objective of the study is to assess the outcome of two different approaches (surveillance versus surgery) in patients with different tumor sizes. Tumor sizes were divided into 3 categories: <1cm, 1-2cm, >2cm.

RESULTS: We reviewed 5057 patients [3332 (65.9%) grade 1, 476 (9.4%) grade 2, with the rest being grade 3 or unknown grade]. Fifty-two percent were males. Median age at diagnosis was 61 (19-90) years. Stage distribution included 2129 (74.2%), 338 (11.8%), 38 (1.3%) and 365 (12.7%) patients for stages 1, 2, 3 and 4, respectively. Median follow-up was 27.8 months. Among non-metastatic patients, 5-year OS was 87.9% and 90.4% for grade 1 and grade 2 tumors,

respectively. The number of patients with tumor size <1cm, 1-2cm, and >2cm were 333 (14.2%), 849 (36.2%), and 1164 (49.6%), respectively. Surgical resection improved survival in patients with tumor size >1cm (see Table 1). The median 30-day and 90-day mortality among patients who underwent surgery was 1.4% and 1.8%, respectively.

CONCLUSION: Our study is the largest on well-differentiated Pan NETs. Active surveillance is potentially a safe approach for Pan NETs < 1cm. Larger tumors likely need active intervention. Prospective randomized clinical trials are needed in order to conquer the current challenges of patients with Pan NETs.

Table 1:

Univariate analysis of the 5-year overall survival

Tumor size	Surgery (n = 2112)	No surgery (n = 234)	P value
<1cm	94.8%	95.2%	0.827
1-2cm	91.9%	63.1%	<0.001
>2cm	90.5%	79.3%	0.003