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Have We Accounted for Asians? A Critical Analysis of Racial Cancer Disparity Amongst Asian Pancreatic Neuroendocrine Tumor Patients

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BACKGROUND

Pancreatic neuroendocrine tumors (pNETs) are slow growing, malignant tumors that show different survival outcomes by race. They are often diagnosed in late stages, with few treatments available. PNETs are the second most common pancreatic cancer and are rapidly increasing in incidence. Current size-based guidelines were largely developed in White patients and recently have been called into question for Black patients. We investigated differences of primary tumor size (PTS) and incidence of lymph node metastasis (LNM) between White and Asian pNET patients to evaluate generalizability of established guidelines.

METHODS

A multi-institutional analysis of patients with low grade, resected, nonfunctional, sporadic, non-metastatic pNETs was performed using the National Cancer Database. A Chi-squared test was utilized to determine correlation between PTS and incidence of LNM as well as patient racial group and incidence of LNM. A logistic regression model was utilized to determine correlation between LNM, tumor size, and patient racial group. Overall survival was assessed using the Kaplan-Meier method.

RESULTS

A total of 4,977 pNET patients (205 Asian and 4772 White) were analyzed in the dataset. Both White and Asian patients had low incidence of lymph node metastasis (26.9% and 19.0%, respectively, $p < 0.05$). Within both populations, tumor size (<2cm, 2-3cm, and >3cm) positively correlated with incidence of LNM (11.5%, 24.6%, and 39.1%). No difference in LNM rate was noted between the two racial cohorts with PTS \leq 3cm, however Asian patients are less likely to exhibit LNM at PTS >3cm (28.2% and 39.5%). Overall survival was not shown to be significantly different between Asian and White pNET populations ($p = 0.68$).

CONCLUSIONS

Current surveillance recommendation for pNET primary tumor size less than 2cm is based on data derived from primarily White patients populations, but appears to be similar in Asian patients. Though overall risk of LNM was shown to increase with size, Asian pNET patients did not exhibit increased risk of LNM until PTS >3cm. Our findings suggest current size-based guidelines are accurate for Asians, but more research is needed in larger cohort.

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