Recurrence Patterns following Surgical Resection of Gastroenteropancreatic Neuroendocrine Tumors: An Analysis from the NCCN Oncology Outcomes Database

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Introduction
- Resection of gastroenteropancreatic neuroendocrine tumors (NETs) is known to prolong survival.1-3
- Current National Comprehensive Cancer Network (NCCN) guidelines recommend that complete surgical resection of the primary tumor and metastases with curative intent should be performed whenever possible.2
- However, risk and patterns of recurrence are not well defined following resection of gastroenteropancreatic NETs.2

Aims
To utilize data from the NCCN’s NET Outcomes Project database to:
1) Report recurrence rates, disease-free survival (DFS), and overall survival (OS) for patients with gastroenteropancreatic NETs who underwent surgical resection with curative intent.2
2) Identify patient subgroups at particularly high risk of recurrence following surgical resection of gastroenteropancreatic NETs.2

Methods
The NCCN NET Outcomes Project Database was comprised of data collected from 7 participating NCCN member institutions. The study cohort consisted of patients a≥18 years who received care at a participating institution for a new diagnosis of a small bowel, pancreas, or colorectal NET between January 2004 and December 31, 2008. All underwent a complete (R0) resection of the primary tumor, with resection of metastases if present, without gross residual disease following surgical procedure(s) (see Figure 1). Follow-up data was collected until database closure in 2012. Median follow-up time from R0 resection date was 62.1 months. Descriptive statistics were used to determine recurrence rates across sites and stages. Kaplan-Meier estimates were used to calculate time-associated endpoints. Comparisons were assessed by the log-rank test.

Results

1. Conclusions
- Among all patients with a gastroenteropancreatic NET who underwent an R0 resection, >80% of patients were alive at five-year follow-up, regardless of primary site.3-6
- While stratification according to stage revealed differences in DFS for patients with pancreatic and small bowel NETs, a statistically significant difference in OS was not detected.3-6
- The presence of metastatic disease should not deter an attempt at R0 resection, when feasible.7
- Recurrences were detected beyond five years, suggesting NCCN recommendations for 10 years of follow-up may be appropriate.8
- Surveillance as surveillance may be of limited utility.8
- Surveillance practices among NCCN institutions are variable, suggesting need for refinement of guidelines.8

2. Limitations
- Analysis was limited by incompleteness of follow-up data in the database, including stage, test results, and site of recurrence.1
- Median follow-up time was limited by database closure in 2012.2
- Based upon previous reports that nearly all patients who undergo resection of liver metastases from NETs recur within 10 years,3-6 this data may not reflect late recurrence patterns and longer-term outcomes for gastroenteropancreatic NETs.4

3. Future Directions
- Further inquiry into appropriate frequency, type, and duration of surveillance is needed.7
- Prospective database design and construction should include annotation and long duration of follow-up data.9

References

Figure 1. Inclusion criteria and determination of sample size.