Survival Analyses of Pancreatic Neuroendocrine Tumors: Contrasting Institutional Databases with Population-based Studies

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Abstract:

Background: Prognostic data in pancreatic neuroendocrine tumors derives from population-based studies as well as from institutional databases.

Methods: The stage-stratified rates of 5-year survival derived from two institutional databases were contrasted with rates of 5-year survival derived from two national population-based studies (SEER 1973-2000 and National Cancer Data Base (NCDB) 1985-2004).

Results: The 5-year survival rates derived from the two respective institutional databases were concordant with each other, but markedly higher than the 5-year survival rates derived from the population databases (Table 1). 5-year survival rates amongst stage IV patients were 55% and 57% in the institutional databases versus 15% and 19% in the population databases.

Conclusions: Survival rates derived from institutional databases are substantially higher than survival rates derived from national population databases. These differences have yet to be clarified.

Introduction:

- The prognosis of patients with metastatic pancreatic neuroendocrine tumors is poorly defined.
- Epidemiological databases such as the SEER registry are often quoted in the literature, however the reported survival durations (median 16-17 months in the metastatic setting) are not consistent with the indolent nature of pNETs.
- We evaluated whether institutional databases provided different prognostic information compared to national registries.

Methods:

- Three published databases, and one newly-developed database of 425 patients at Moffitt Cancer Center were analyzed (Table 1).
- Survival outcomes (5-year survival rates and mean or median survival durations) were compared.

Results:

- The 5-year survival rates and median survival durations derived from the two separate institutional databases were concordant with each other, but markedly higher than the 5-year survival rates derived from the national population registries (Tables 2 and 3).
- 5-year survival rates amongst stage IV patients were 55% and 57% in the institutional databases versus 15% and 19% in the population registries.

Mean/Median survivals amongst stage IV patients were 68-86 months in the institutional databases versus 14-17 months in the population registries.

Table 1: Key features of analyzed databases

Table 2: 5-year survival rates of patients with pNETs stratified by stage: institutional databases vs. population based registries

Table 3: Median/Mean survivals of patients with pNETs stratified by stage: institutional databases vs. population based registries

Conclusions:

- Stage-specific survival rates derived from institutional databases are markedly higher than survival rates derived from national registries.
- Outcomes reported in population databases (SEER and NCDB) are not reflective of the indolent nature of most NETs. Reported survival rates are inferior to more aggressive malignancies such as colorectal and breast cancer.
- The substantial discrepancies between institutional and population databases are not easily explained. Superior therapies offered at tertiary referral centers may partially explain improved outcomes observed in institutional databases. Referral biases may also contribute to discrepancies in survival; however it is unclear whether referral centers attract a more favorable-prognostic group.