Follow-up and recurrence in resected gastroenteropancreatic neuroendocrine tumours: A population-based study

D. Chan¹, E. Segelov², L. Moody³, N. Liu⁴, H. Fischer⁵, P. Austin⁶, S. Singh¹
¹Medical Oncology, Sunnybrook Odette Cancer Center, Sunnybrook HSC, Toronto, ON, Canada, ²Medical Oncology, Monash University and Monash Health, Melbourne, Australia, ³IHPME, University of Toronto, Toronto, ON, Canada, ⁴Biostatistics, Institute of Clinical Evaluative Sciences, Toronto, ON, Canada

Background: Neuroendocrine tumours (NETs) are uncommon. Little data exist to guide follow-up in resected disease, with no consensus regarding the optimal follow-up frequency or modality. Follow-up imaging regimens are extrapolated from other gastrointestinal tumours. As NETs are heterogeneous, this may result in both over-use and underuse of investigations in patients.

Methods: A population-based retrospective cohort study using linked data from the Institute for Clinical Evaluative Sciences and the Ontario Cancer Registry (capturing more than 99% of incident cases in Ontario) was conducted to evaluate patients diagnosed with gastroenteropancreatic NETs in Ontario, Canada from 1994 to 2012. Recurrence-free survival and the frequency of cross-sectional imaging (abdominal computed tomography (aCT), magnetic resonance imaging (aMRI) and ultrasound (aUS)) were the main outcomes.

Results: Nine hundred and thirty-six patients were identified with median follow-up of 47 months. The mean age was 59.51% were female, and distribution of primary cancers was: small intestine 47%, pancreas 20%, large intestine 21%, rectum 6.4%, stomach 6.0%. The median survival time to a composite outcome of recurrence or death was 7.2 years, and 9.5 years if censoring on death. The cumulative incidence of recurrence was 8.4% (95% CI 6.8% to 10.3%) within one year, 33.7% (95% CI 30.4% to 36.9%) within five years, and 48.5% (95% CI 44.4% to 52.4%) within 10 years. The rate of recurrence significantly increased with age (HR = 1.529 for age 50-70 compared to < 50, p = 0.0003) and pancreatic primary (HR = 1.463, p = 0.0066), but not income quintile (p = 0.107), rurality (p = 0.193) or gender (p = 0.378). The rate of use of aCTs, aMRIs and aUS decreased over time, from 1.04 per 100 patient-days in months 1-3 to 0.22 at months 49-60. On average, 1.59 abdominal CTs per patient were performed in the first year, 0.83 in the second year and 0.52 in years 3-5.

Conclusions: Unlike colon cancer, significant numbers of NETs recur between 5-10 years after curative surgical resection. These data support the lengthening of follow-up for resected NETs to a minimum of 10 years. Future research should focus on the impact of imaging on early detection of recurrence and survival outcomes.

Legal entity responsible for the study: Sunnybrook Research Institute

Funding: AGITG

Disclosure: D. Chan: Travel support from Novartis; honoraria from Ipsen. E. Segelov: Honoraria from Roche, Bayer, Ipsen and Pfizer; research funding from Merck Serono and Ipsen; travel support from Roche and Ipsen. S. Singh: Honoraria and travel funding from Ipsen, Pfizer and Novartis. All other authors have declared no conflicts of interest.