

## P-6

# Contemporary epidemiology of gastro-entero-pancreatic neuroendocrine neoplasms

Léamarie Meloche-Dumas<sup>1</sup>, Simron Singh<sup>1,2</sup>, Jessica Armah<sup>3</sup>, Anna Ding<sup>3</sup>, Wing C. Chan<sup>4</sup>, Julie Hallett<sup>1,2</sup>.

<sup>1</sup>University of Toronto, Toronto, ON; <sup>2</sup>Susan Leslie Clinic for Neuroendocrine Tumors, Odette Cancer Centre, Toronto, ON;

<sup>3</sup>Sunnybrook Research Institute, Toronto, ON; <sup>4</sup>ICES, Toronto, ON.

## BACKGROUND

While rise in incidence of gastro-entero-pancreatic neuroendocrine neoplasms (GEP-NENs) was described in the early 2000s, awareness and diagnostics have changed. Continued understanding trends in NEN epidemiology is crucial to inform practices and health system planning, but contemporary data are lacking. We examined GEP-NENs incidence and overall survival (OS) after diagnosis in the last 20 years.

## METHODS

We conducted a population-based study of incident GEP-NENs from 2000 to 2023. Yearly incidence per 100,000 people were computed. Multivariable Poisson regression examined factors associated with incidence over time. OS was computed with Kaplan-Meier methods and factors associated with OS assessed with multivariable Cox regression.

## RESULTS

Of 12,877 GEP-NENs identified, 26.7% had metastases at diagnosis. The overall incidence increased 3-fold, from 1.83 to 7.46 per 100,000, over 2000-2023. As of 2023, the incidence was highest among small intestine NENs, followed by pancreas, rectum, appendix, stomach and large intestine NENs. The increase in incidence over 2000-2023 was largest for gastric (5.6-fold) and pancreatic NENs (4.6-fold). The rise in incidence was mostly driven by that of non-metastatic NENs (absolute difference 4.81 per 100,000 for 6.5-fold increase), with little change for metastatic NENs (absolute difference 0.9 per 100,000 for 1.2-fold increase). No change in incidence was observed for neuroendocrine carcinoma. Advancing age and rural residence (rate ratio – RR 3.23, 95%CI 3.01-3.46) were associated with larger increase in incidence, and female sex (RR 0.91, 95%CI 0.88-0.95) and metastases (RR 0.44, 95%CI 0.42-0.46) with a smaller increase. 5-year OS was 76% (95%CI 75-77%) overall, with 88% (95%CI 87-89%) without metastases and 56% (95%CI 54-57%) with metastases at diagnosis. OS was best for gastric neuroendocrine tumors and worst for colon NENs, with 93% (95%CI 91-94%) and 51% (95%CI 48-54%) at 5 years, respectively. Advancing age, lower socio-economic status, metastases at diagnosis (hazard ratio – HR 3.6, 95%CI 3.3-3.8) and carcinoma histology (HR 2.0, 95%CI 1.9-2.2) were independently associated with worse OS, while female sex (HR 0.83, 95%CI 0.78-0.88) was associated with better OS.

## CONCLUSIONS

The incidence of GEP-NENs continued to rise over the past two decades, driven by non-metastatic NENs and neuroendocrine tumors. Combined with larger increases observed for gastric and

pancreatic NENs, this suggests increased detection as a likely mechanism. OS is favourable after GEP-NEN diagnosis, with worse prognosis for older patients and those with metastases and neuroendocrine carcinoma. Further work will examine the correlation between diagnostic testing use and changes in incidence, and assess changes in OS over time.

**ABSTRACT ID 33436**

