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Risk of Cancer-Specific Death for Patients Diagnosed With Neuroendocrine Tumors (NETs): A Population-Based Analysis

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BACKGROUND: While patients with NETs are known to experience prolonged overall survival, the contribution of cancer-specific and non-cancer deaths is undefined. We examined cancer-specific and non-cancer death after NET diagnosis.

METHODS: We conducted a population-based retrospective cohort study of adult patients with NETs from 2001-2015 by linking administrative healthcare datasets. Using competing-risks methods, we estimated the cumulative incidence of cancer-specific and non-cancer death and stratified by primary NET site and metastatic status. Sub-distribution hazard models examined prognostic factors.

RESULTS: Among 8,607 included patients, median follow-up was 42 months (interquartile range: 17-82). The risk of cancer-specific was higher than that of non-cancer death, with 27.3% (95%CI: 26.3-28.4%) and 5.6% (95%CI: 5.1-6.1%) at 5 years. Cancer-specific deaths largely exceeded non-cancer deaths in synchronous and metachronous metastatic NETs. Patterns varied by primary tumour site, with highest risks of cancer-specific death in broncho-pulmonary and pancreatic NETs. For non-metastatic gastric, small intestine, colonic, and rectal NETs, the risk of non-cancer death exceeded that of cancer-specific deaths. Advancing age, lower socioeconomic status, and metastases were independently associated with higher hazards, and female sex and high comorbidity burden with lower hazards of cancer-specific death.

CONCLUSION: Among all NETs, the risk of dying from cancer is higher than that of dying from other causes. Heterogeneity exists by primary NET site. Some patients with non-metastatic NETs are more likely to die from non-cancer than from cancer causes. This information is important for counselling, decision-making, and design of future trials. Cancer-specific mortality should be included in outcomes when assessing treatment strategies.

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