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Short-term post-operative outcomes after surgery for entero-pancreatic neuroendocrine tumors (NETs): a population-based analysis

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BACKGROUND

Surgery is a cornerstone of management for neuroendocrine tumors (NETs), but outcomes vary. It is critical to understand the real-world morbidity profile of surgery to optimize patient selection and outcomes. We examined short-term outcomes after resection for entero-pancreatic NETs.

METHODS

We performed a population-based retrospective cohort study of adults with entero-pancreatic NETs (2000–2023). The outcome was 90-day major morbidity (MM – Clavien-Dindo 3–5) and 90-day days-at-home after surgery (90-DAH). Logistic regression examined factors associated with outcomes for each type of surgery.

RESULTS

Of 3,536 patients operated for entero-pancreatic NETs, 40.1% had pancreatic primary and 57.4% had metastases. Surgery occurred at median 2 months after diagnosis (IQR: 0–75). 90-day MM was 24.4% after all surgeries, including 26.9% after hepatectomy, 30.3% after pancreatectomy, 21.3% after enterectomy, and 30.4% after combined resection (hepatectomy with enterectomy or pancreatectomy). 90-day mortality was 3.4% overall, with 4.0%, 1.7%, and 4.1% after hepatectomy, pancreatectomy, and enterectomy, respectively. Median LOS was 7 days (IQR: 5–10) overall, with 26.9% having prolonged LOS (>75th percentile). Combined resection (OR 1.44; 95%CI 1.08–1.94) and pancreatoduodenectomy (OR 2.35; 95%CI 1.77–3.12), as well as age (OR 1.21; 95%CI 1.14–1.29) and higher comorbidity burden (OR 1.56; 95%CI 1.21–2.01) were independently associated with increased odds of 90-day MM. Median DAH-90 was 89 (IQR: 88–89) overall and did not differ by surgery type. Enterectomy (OR 0.98; 95%CI 0.97–0.99) and pancreatoduodenectomy (OR 0.98; 95%CI 0.96–0.99), increasing age (OR 0.97; 95%CI 0.97–0.98), and higher comorbidity (OR 0.95; 95%CI 0.92–0.98) were independently associated with fewer 90-DAH.

CONCLUSIONS

Approximately 1 out of 4 patients experienced 90d-MM after surgery for NETs and mortality below 5%, with increased risk for combined and pancreatoduodenectomy. Most patients spent the majority of time at home after surgery for NETs. This information is important to counsel patients, inform

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