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Post-procedure outcomes of liver-directed therapy of neuroendocrine liver metastases

Léamarie Meloche-Dumas¹, Frédéric Mercier², Victoria Barabash³, Calvin Law^{1,4}, Simron Singh^{3,4}, Sten Myrehaug^{3,4}, Wing Chan⁵, Julie Hallet^{1,4}.

¹Department of Surgery, University of Toronto, Toronto, ON, Canada; ²Department of Surgery, Université de Montréal, Montréal, QC, Canada; ³Sunnybrook Research Institute, Toronto, ON, Canada; ⁴Susan Leslie Clinic for Neuroendocrine Tumors - Sunnybrook Health Sciences Centre, Toronto, ON, Canada; ⁵ICES, Toronto, ON, Canada.

BACKGROUND

While there have been major advances in the care of neuroendocrine tumors (NETs), there is still no widely adopted therapeutic sequencing in metastatic NETs. The roles and benefits of locoregional treatments need reassessment, in order to define a modern therapeutic algorithm. We examined contemporary short-term outcomes of liver-directed therapy for metastatic NETs.

METHODS

We conducted a population-based retrospective cohort study of patients with metastatic NETs (2000-2019) undergoing liver embolization (LE) or liver resection (LR). Outcomes were 30-day major morbidity (Clavien-Dindo grade 3-5) and/or re-admission (composite) and length of hospital stay. Modified Poisson regression accounting for clustering at the hospital level examined factors associated with outcomes in both treatment groups.

RESULTS

Overall, 1,224 LEs and 502 LRs were performed for 5,159 patients with metastatic NETs. Median length of hospital stay was 1 day (IQR 1-4) for liver embolization and 7 days (IQR 5-9) for liver resection. 30-day major morbidity and re-admission occurred after 213 LEs (17.4%) including 40 (3.3%) deaths, and 138 LRs (27.5%) including 11 (2.2%) deaths. There were 25 (2%) LEs followed by infectious complications. Factors independently associated with increased risk after LE were prior LE treatment (adjusted relative risk- aRR 0.62; 95%CI 0.44-0.88), rural residence (aRR 0.43; 95%CI 0.20-0.91) and high comorbidity burden (aRR 1.85; 95%CI 1.34-2.54). The only factor independently associated with increased risk after LR was metachronous metastases (RR 0.60; 95%CI 0.37-0.98).

CONCLUSIONS

In this contemporary cohort, LE was associated with mortality similar to that of LR. Prior LE, rural residence, comorbidities, and metachronous metastatic diagnosis were associated with higher risk of major morbidity and re-admission. This information is important when discussing the use of and choice of liver-directed therapies in the multi-disciplinary management of metastatic NETs. Further characterization of long-term outcomes and patient-reported outcomes will further support decision-making, counselling, and patient preparation.