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Improving Outcomes for Neuroendocrine Patients: 25 year review of 1699 NET Surgical Cytoreduction Patients at a Single Institution

Sanchit Sachdeva, MD[1]; Nicholas J. Skill, PhD, JD[2]; Mary Maluccio, MPH, MD, FACS[3].

[1]Department of Surgery at Louisiana State University Health Science Center; [2]Department of Interdisciplinary Oncology at Louisiana State University Health Science Center; [3]Division of Surgical Oncology at Louisiana State University Health Science Center.

BACKGROUND

Surgical cytoreduction for neuroendocrine tumors (NETs) remains a standard of care treatment strategy. Patient selection and long-term expectations of survival have relied on relatively small series of primarily abdominal tumors; however, a better understanding of cytoreductive outcomes is important for patients as treatment paradigms have evolved. The objective of this study was to evaluate the value of surgery from a large cohort of patients at a single institution with strong surgical experience, robust clinical variables that support patient selection, and long term follow up data on survival. It also clarifies the potential to improve outcomes in cases that are outside standard selection criteria, including higher grade tumors and metastatic bronchopulmonary NETs.

METHODS

Records of patients with NETs who underwent surgical cytoreduction at our institution from 1999 to present were reviewed. From 5290 NET pts, 1699 were identified to have documented grade, primary site and overall survival data. Length of follow up was calculated from date of index surgery to date of either death or last documented encounter. Kaplan Miere curves were constructed and median overall survival (mOS) and % OS were calculated. Survival was computed based on clinical records and cross reference with social security master death lists using Lexis Advance software.

RESULTS

Amongst the 1699 patients, 898, 673, and 128 pts were G1/G2/G3 respectively. Of the 1699 patients, complete demographic data was identified in 1472 (F:821 (55.8%) , M:651 (44.2%). Mean age of diagnosis was 56 ± 13.2 years. Average follow up was 8.1 ± 5.6 years. Median overall survival (mOS) of all G1/G2/G3 NETs were 230 months, 148 months, and 109 months respectively ($p<0.01$), exceeding previously published data. G1/G2/G3 small bowel NETs (n= 531/327/36) had a mOS of 18.5, 16.3, and 9.6 years, again exceeding previously published data. Interestingly, G1/G2/G3 PNET patients (n=97/129/41) had a 10/15 year % OS of 69.8% and 57.9% for G1 vs over 50% for G2 vs 18.1% and 0% for G3. Furthermore, G1/G2 bronchopulmonary primary NETs (n=36/30) had a 5/10 year % OS of 83.9% and 80.0% for G1 vs 50% and 47.8% for G2.

CONCLUSIONS

Surgical cytoreduction remains an important treatment option in NETs patients with long-term

survival data showing increasingly improved outcomes over 25-year follow-up, including in G3 well-differentiated tumors and metastatic bronchopulmonary NETs. Our data underscores the merits of care at a high-volume center with standard methods of patient selection and cytoreduction endpoints.

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