Outcomes for Patients with Surgically Resected Thymic Neuroendocrine Tumors

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Background: Thymic neuroendocrine tumors (NETs) are rare and outcomes after surgical resection are poorly described. Adjuvant therapies are advocated by some, but with unclear prognostic impact. We reviewed our experience with surgically resected thymic NETs to identify factors influencing outcomes and develop best practice treatment guidelines for these patients.

Methods: Patients treated at a single institution, from 1975-2015, with surgically resected thymic NETs were retrospectively reviewed. Institutional tumor registry and departmental database data was supplemented by chart review. Tumor size, stage, histology, date and extent of surgery, margins, and adjuvant and neoadjuvant therapy were reviewed. Univariate and multivariate analyses examined predictors of survival and recurrence. Kaplan-Meier analyses calculated survival.

Results: We identified 27 patients with surgically resected thymic NETs, including 7 (25.9%) with MEN1. Mean and progression-free survival were 129 +/- 25.7 months (95% CI 78.6-179.5 months) and 75.0 +/- 15.0 months (95% CI 45.6 – 104.4 months), respectively (Figure 1). Univariate analysis showed that sex, age, tumor size, tumor grade, margins, nodal status, and MEN1 diagnosis did not influence survival or recurrence. 3 (11.1%) patients underwent induction chemotherapy, 7 (25.9%) adjuvant chemotherapy and 13 (48.1%) adjuvant radiation. Induction chemotherapy significantly predicted mortality (HR 33.4, 95% CI 3-373, p=0.004) on univariate analysis. Upon multivariate modeling, induction therapy resulted in worse progression-free survival (HR 9.21, 95%CI 1.52-55.8, p=0.016). Neither adjuvant chemotherapy nor radiation affected overall survival (p=0.452, p=0.652) or recurrence (p=0.962, p=0.856).

Conclusion: Our review, representing the largest single institution North American series of surgically resected thymic NETs, shows that adjuvant chemotherapy and radiation did not affect outcomes. Induction therapy in 3 patients resulted in increased mortality; however this may reflect extensive preoperative disease and is limited by sample size. Additionally, no preoperative or tumor factors were associated with prognosis. Surgical resection remains the mainstay of treatment thymic NETs, without clear evidence supporting adjuvant therapies.

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