

Trends in Thymic Epithelial Tumor Patients with Comorbid Autoimmune Disease

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Thymic epithelial tumors (TETs) are rare malignancies originating from the thymus in the anterior mediastinum. TETs include thymic carcinoma and thymoma. Approximately 30-40% of thymomas have associated autoimmune paraneoplastic disorders, the most common being myasthenia gravis. A broad range of other paraneoplastic syndromes have also been reported. Currently, little is known about demographic or histological trends in thymoma patients with comorbid autoimmune disease. In this single institution retrospective chart review, we assessed the distribution of thymoma-associated paraneoplastic syndromes at the IU Simon Cancer Center (IUSCC) to identify trends within demographic and histological features. We created a database of IUSCC patients seen from 2000-2023 and identified 170 subjects with biopsy-proven malignant TET and associated autoimmune disease. Data was exported to excel and R for analysis. Factors analyzed included: age at diagnosis, sex assigned at birth, BMI, WHO (World Health Organization) classification, and Masaoka staging. Overall survival was also compared to matched controls without paraneoplastic syndrome. A total of 37 different paraneoplastic syndromes were identified in association with thymoma in IUSCC patients. The most prevalent was Myasthenia Gravis (110 patients), followed by Hypothyroidism (21 patients, 5 confirmed as Hashimoto's thyroiditis), Good Syndrome (19 patients), and Pure Red Cell Aplasia (15 patients). Significant findings included: 36.4% of patients with paraneoplastic comorbidity had >1 paraneoplastic syndrome, 51.8% presented with Stage IV disease, and 40.4% had WHO Type B2 tumor pathology, with Type B3 being second most common (25%). No significant demographic associations were identified. 10-year survival of TET patients with paraneoplastic syndromes was not significantly different from those without ($p= 0.721$). These results indicate potential associations between thymoma staging and grading and development of paraneoplastic disease. Further analysis with a larger data set is warranted. Serum and blood test analysis may also elucidate reasons behind the development of paraneoplastic disease in thymoma patients.