AB006. OA01.06: Incidence and pathological features of thymomatous myasthenia gravis after thymectomy at a tertiary-level center

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Background: Since the landmark randomized trial of thymectomy in myasthenia gravis (MGTX), total thymectomy is considered standard of care in conjunction with medical management for myasthenia gravis (MG). We aim to report the incidence of thymomatous MG in our population, tumor histopathological characteristics, and background thymus tissue histopathological characteristics in comparison to those without MG. We also compared MG remission rate for thymomatous versus non-thymomatous MG. We hypothesize that the background thymus tissue in thymomatous MG differs than non-thymomatous MG with respect to volume of germinal centers, and that histology of thymoma in those with MG differs from those without MG.
Methods: A cross-sectional retrospective review of a prospectively maintained surgical database was queried for consecutive thymectomy cases from 2001 to 2017. Vancouver General Hospital (VGH) is the largest tertiary-level thoracic surgical referral center for Western Canada, and was a MGTX trial collaborating site. Thymic tumors were stratified by presence of MG, and compared via univariate and multivariate regression analysis adjusted for patient and tumor characteristics (age, sex, histopathology, and stage).
Results: A total of 297 thymectomies were conducted in a population of age 53±16, and 42% male. MG involved 115 (38.7%) cases, for an incidence of 45.2% thymomatous MG. A younger mean age (48.7 *vs.* 56.1 years, P=0.0001), and smaller tumor size (4.9 *vs.* 6.2 cm, P=0.008), and female sex (P=0.009) were associated with thymomatous MG compared to non-thymomatous. Germinal hyperplasia in background thymic tissue was more often found with MG (OR =2.94; 95% CI, 1.58–5.49; P=0.0004); as was WHO B1 histopathology (OR =2.23; 95% CI, 1.02–4.90; P=0.03). In contrast, WHO AB was less likely associated with MG (OR =0.25; 95% CI, 0.10–0.65; P=0.001). There was no observed difference in complete MG remission rate post thymectomy for thymomatous *vs.* non-thymomatous MG [8 (29.6%) *vs.* 19 (70.4%), P=0.552] in thymomatous MG.
Conclusions: Epithelial predominant WHO B1 thymoma and germinal cell hyperplasia were more likely to be associated with MG in our population. Future research direction may focus on the role of T-lymphocyte immune response in pathophysiology of thymomatous MG.

Keywords: Myasthenia gravis (MG); thymoma; thymectomy; surgery

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