Clinical Science

AB001. OS01.01. Post op radiation may be detrimental in thymoma but not in thymic carcinoma tumors

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Background: Due to lack of randomized trials, the role of postoperative radiation therapy (PORT) in thymic epithelial tumors (TET) remains controversial. This study aimed to evaluate whether PORT improves treatment outcome in patients with resected TET in a large single institution database.

Methods: This is a retrospective study of all TETs seen at Indiana University between 1975 and 2015. Patients with resected thymoma or thymic carcinoma were eligible disregarding their margin status or stage. Study endpoints were progression free survival (PFS) and overall survival (OS). Age, gender, race, tumor size, stage, pathology, grade, completeness of resection and adjuvant treatment modality were analyzed for significance on PFS and OS. Multivariate Cox model was used to identify significant factors for propensity score matching. Differences between the PORT and surgery alone group were estimated using stratified log-rank test.

Results: A total of 478 patients with surgical resection of primary tumors were eligible. Masaoka stage was: (I) 86 (22%); (II) 87 (23%); (III) 107 (28%); and (IV) 106 (27%) respectively. Multivariate analysis demonstrated that gender (HR =1.4, P=0.03), stage (HR =1.3, $P=3\times10^{-3}$), thymic carcinoma (HR =1.6, P=0.03) and PORT (HR =1.6, P=0.002) were significantly associated with PFS. Age (HR =1.1, $P=4\times10^{-7}$), histology of thymic carcinoma (HR =3.2, $P=3\times10^{-5}$), stage (HR =1.4, P=0.003) were associated with OS. PORT was given to 126 (26%) patients. Propensity score matching based on independent prognostic factors of OS identified 99 patients for PORT, matched to 285 patients without. The 5/10-year intra-thoracic progression free rates were 77%/69% and 85%/68%, for patients with and without PORT (P=0.009), respectively. The 5-/10-year PFS rates were 39%/18% and 61%/32%, for patients with and without PORT (P=0.002), respectively. The median survival, 5-/10-year OS rates for patients treated with PORT were 150 (95% CI, 111–277) months, 87%/57% and respectively, compared to 192 months (95% CI, 167–279), 88%/69% for patients receiving surgery alone (P=0.13). Subgroup analysis demonstrated that PORT significantly decreased PFS in thymoma (P<0.001), did not significantly change PFS in thymic carcinoma (P=0.137), or OS in thymoma (P=0.466) or OS in thymic carcinoma (P=0.719). For patients with stage II/III thymoma, PORT was neither significant for PFS nor OS, for either negative or positive margins (P ranged 0.134–0.461).

Conclusions: In this series of patients, PORT did not improve OS in thymoma or thymic carcinoma disregarding the margin status, but significantly decreased PFS in patients with thymoma. Role of PORT deserves further study in TET.

Keywords: Thymoma; thymic epithelial tumors (TET); thymic carcinoma; post op radiation

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