

AB020. Clinical significance of PET/CT maximum standardized uptake value in predicting lymph node metastasis of thymic epithelial tumors

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Background: The 8th TNM staging system requires the systematic evaluation of mediastinal lymph nodes in thymic epithelial tumors (TETs). In this study, we aimed to explore the clinical impact of PET/CT maximum standardized uptake value (SUVmax) of TETs on predicting lymph node metastasis.

Methods: Patients who were diagnosed with TETs from 2015 to 2022 and underwent PET/CT scans were included. Multivariable logistic regression analyses were used to analyze the independent factors differentiating thymoma and thymic carcinoma and predicting lymph node metastasis. Receiver operating curve (ROC) was applied to determine the efficiency and thresholds in distinguishing between thymoma and thymic carcinoma and predicting lymph node metastasis.

Results: A total of 124 patients were included. Lymph node metastases were present in 44.1% (15/34) of thymic carcinoma patients, compared with only 1.1% (1/90) of thymoma patients. Based on the factors including age, gender, tumor size, local invasion, myasthenia gravis, CT value, SUVmax, metabolic tumor volume (MTV) and total lesion glycolysis (TLG), the multivariable regression

models identified SUVmax as an independent factor for distinguishing thymic carcinoma from thymoma [odds ratio (OR) 1.994, 95% confidence interval (CI): 1.527–2.604, $P < 0.001$] and predicting nodal metastasis of thymic carcinoma (OR 1.462, 95% CI: 1.217–1.756, $P < 0.001$). ROC analysis suggested that SUVmax threshold of 6.17 could distinguish thymic carcinoma from thymoma [area under the curve (AUC): 0.918, sensitivity: 0.882, specificity: 0.789]. In addition, the SUVmax threshold of 10.1 could predict nodal metastasis of thymic carcinoma with the positive predictive value of 0.81 and negative predictive value of 0.97 (AUC: 0.931, sensitivity: 0.812, specificity: 0.972).

Conclusions: PET/CT SUVmax is a reliable factor to distinguish thymic carcinoma from thymoma and predict lymph node metastasis of thymic carcinoma. TETs with SUVmax more than 10 need to have systematic nodal dissection in thymectomy.

Keywords: Thymic epithelial tumor (TET); maximum standardized uptake value (SUVmax); PET-CT; lymph node metastasis

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Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://med.amegroups.com/article/view/10.21037/med-23-ab020/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by the Ethics Board of Zhongshan Hospital of Fudan University (Y2023-078) and individual consent for this retrospective analysis was waived.

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