The Prognostic Prediction Value of Positive Lymph Nodes Numbers for the Hypopharyngeal Squamous Cell Carcinoma

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Abstract : We aimed to compare the prognostic prediction value of positive lymph node number (PLNN) to the American Joint Committee on Cancer (AJCC) tumor, lymph node, and metastasis (TNM) staging system for patients with hypopharyngeal squamous cell carcinoma (HPSCC). A total of 826 patients with HPSCC from the Surveillance, Epidemiology, and End Results database (2004–2015) were identified and split into two independent cohorts: training (n=461) and validation (n=365). Univariate and multivariate Cox regression analyses were used to evaluate the prognostic effects of PLNN in patients with HPSCC. We further applied six Cox regression models to compare the survival predictive values of the PLNN and AJCC TNM staging system. PLNN showed a significant association with overall survival (OS) and cancer-specific survival (CSS) ($P < 0.001$) in both univariate and multivariable analyses, and was divided into three groups (PLNN 0, PLNN 1-5, and PLNN>5). In the training cohort, multivariate analysis revealed that the increased PLNN of HPSCC gave rise to significantly poor OS and CSS after adjusting for age, sex, tumor size, and cancer stage; this trend was also verified by the validation cohort. Additionally, the survival model incorporating a composite of PLNN and TNM classification (C-index, 0.705, 0.734) performed better than the PLNN and AJCC TNM models. PLNN can serve as a powerful survival predictor for patients with HPSCC and is a surrogate supplement for cancer staging systems.

Keywords : hypopharyngeal squamous cell carcinoma, positive lymph nodes number, prognosis, prediction models, survival predictive values

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