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Developing a predictive nomogram and web-based survival calculator for locally advanced hypopharyngeal cancer: A propensity score-adjusted, population-based

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Abstract

Understanding the clinical features and accurately predicting the prognosis of patients with locally advanced hypopharyngeal squamous cell carcinoma (LA-HPSCC) is important for patient centered decision-making. This study aimed to create a multi-factor nomogram predictive model and a web-based calculator to predict post-therapy survival for patients with LA-HPSCC. A retrospective cohort study analyzing Surveillance, Epidemiology, and End Results (SEER) database from 2004 to 2015 for patients diagnosed with LA-HPSCC was conducted and randomly divided into a training and a validation group (7:3 ratio). The external validation cohort included 276 patients from Sichuan Cancer Hospital, China. The Least Absolute Shrinkage and Selection Operator (LASSO)-Cox regression analysis was used to identify independent factors associated with overall survival (OS) and cancer-specific survival (CSS), and nomogram models and web-based survival calculators were constructed. Propensity score matching (PSM) was used to compare survival with different treatment options. A total of 2526 patients were included in the prognostic model. The median OS and CSS for the entire cohort were 20 (18.6-21.3) months and 24 (21.7-26.2) months, respectively. Nomogram models integrating the seven factors demonstrated high predictive accuracy for 3-year and 5-year survival. PSM found that patients who received surgery-based curative therapy had better OS and CSS than those who received radiotherapy-based treatment (median survival times: 33 months vs 18 months and 40 months vs 22 months, respectively). The nomogram model accurately predicted patient survival from LA-HPSCC. Surgery with adjuvant therapy yielded significantly better survival than definitive radiotherapy. and should be prioritized over definitive radiotherapy.