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Prognostic Model on Overall Survival in Elderly Nasopharyngeal Carcinoma Patients: A Recursive Partitioning Analysis Identifying Pre-Treatment Risk Stratification

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Abstract

Objectives:

We aimed to evaluate the optimal management for elderly patients with nasopharyngeal carcinoma (NPC) with intensity-modulated radiotherapy (IMRT).

Methods:

301 elderly patients with NPC diagnosed from 2015 to 2019 were enrolled. Overall survival (OS) was the primary endpoint. The univariate and multivariate Cox regression analysis were preformed to identify potential prognostic factors. The recursive partitioning analysis (RPA) was used for risk stratification. Kaplane-Meier survival curves were applied to evaluate the survival endpoints, and log-rank test was used to assess the difference between groups. The prognostic index (PI) was constructed to further predict patients' prognoses displayed by nomogram model. The area under the receiver operating characteristic (ROC) curves (AUC) and the calibration curves were applied to assess this model.

Results:

Based on RPA-based risk stratification, we demonstrated that elderly NPC patients who were treated with IC followed by RT had similar OS compared with those with IC combined with CCRT in the intermediate- (stage I-III and pre-treatment EBV > 1840 copies/ml) and high-risk groups (stage IV). IMRT alone maybe an optimal treatment option in the low-risk group (stage I-III with pre-treatment EBV < 1840 copies/ml). We established an integrated PI which was indicted with stronger prognostic power than it based on each separately for elderly NPC (The AUC of PI was 0.87, 0.81, and 0.79 for 1-, 3-, 5-year prediction of OS, respectively).

Conclusion(s):

We present a robust model for clinical stratification which could guide individual therapy for elderly NPC patients.