

Clinicopathological Characterisation of Lymph Node and Lymphovascular Invasion Metastasis of Esophageal Adenocarcinoma in China and the Influence on Prognosis

Xin Song, Xiaolong Tao, Ran Wang, Zongmin Fan, Xuena Han, Bei Li, Lidong Wang*

State Key Laboratory of Esophageal Cancer Prevention & Treatment and Henan Key Laboratory for Esophageal Cancer Research of the First Affiliated Hospital, Zhengzhou University, Zhengzhou, China

Email address:

xsong2012@126.com (Xin Song), xltao2000@126.com (Xiaolong Tao), wangran7758521@126.com (Ran Wang), zongminfan@126.com (Zongmin Fan), xuenahan@126.com (Xuena Han), mbeili@126.com (Bei Li), ldwang2007@126.com (Lidong Wang)

*Corresponding author

Abstract

Objectiv To investigate the clinicopathological distribution of lymph node and blood channel metastasis of esophageal adenocarcinoma (EAC) in China and its influence on prognosis. *Methods* Chi-square test was used to analyze the clinicopathological distribution of lymph node metastasis and lymphovascular invasion (LVI) in 3,584 patients with EAC. Kaplan-Meier and life table methods were used to analyze the influence on survival. *Results* There were significant differences in gender, tumor location, differentiation degree and T stage between positive and negative patients with lymph node metastasis of EAC ($P < 0.05$). There were significant differences in gender, incidence area, family history, tumor site, differentiation degree and T stage between positive and negative patients with LVI of EAC. There was a strong positive correlation between LVI and lymph node metastasis (Kendall's tau-b=0.438, $P < 0.001$). The risk of death in patients with node-positive EAC was 2.045 times higher than that in patients with node-negative EAC ($P < 0.001$, HR2.045, 95%CI: 1.636-2.557), and the risk of death in patients with node-positive EAC was 1.291 times higher than that in patients with node-negative EAC ($P < 0.001$, HR1.291, 95%CI: 1.096-1.520). Compared with patients with EAC without LVI and lymph node metastasis, the risk of death was increased by 1.403 times when lymph node metastasis occurred ($P < 0.001$, HR1.403, 95%CI: 1.122-1.754). Patients with EAC had a 1.621-fold increased risk of death when both LVI and lymph nodes metastasized ($P < 0.001$, HR1.621, 95%CI: 1.333-1.971). *Conclusion* Family history, lymph node metastasis and T stage are three independent risk factors for LVI of EAC. As important risk factors for prognosis, LVI and lymph node metastasis should be included in the prognosis evaluation system for EAC.

Keywords

Esophageal Adenocarcinoma, Lymph Node Metastasis, Lymphovascular Invasion, Predictive Model, Survival Analysis