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## 血管内皮生长因子 C 和 D 可能促进食管鳞癌组织中淋巴管的生成

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**[摘要]** **目的:** 研究食管鳞癌组织中血管内皮生长因子 C(VEGF-C)和血管内皮生长因子 D(VEGF-D)表达在淋巴管生成中的作用,初步探讨食管鳞癌浸润转移演进的可能机制。**方法:** 采用免疫组化 SP 法检测 64 例食管鳞癌组织中 VEGF-C 和 VEGF-D 的表达水平及 D2-40 标记的淋巴管密度(LVD),分析三者与食管鳞癌临床病理特征的关系。**结果:** VEGF-C 和 VEGF-D 在食管鳞癌及癌旁组中的表达明显高于正常组( $P < 0.01$ ),并与淋巴结转移、肿瘤浸润深度及 TNM 分期有关( $P < 0.05$ );癌及癌旁组织中 LVD 明显高于正常组( $P < 0.05$ ),但 LVD 与淋巴结转移等临床病理特征间无明显相关性;LVD 在 VEGF-C 和 VEGF-D 表达阳性组中高于阴性组( $P < 0.05$ )。**结论:** VEGF-C、VEGF-D 在食管鳞癌组织中可能促进淋巴管的生成。

**[关键词]** 食管肿瘤;血管内皮生长因子;淋巴管密度

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## Vascular endothelial growth factor C, D promote formation of lymphatic vessel in esophageal squamous cell carcinoma

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**[ABSTRACT]** **Objective:** To investigate the role of vascular endothelial growth factor C (VEGF-C), D (VEGF-D), and lymphatic vessel formation induced by them in the spreading of esophageal squamous cell carcinoma (ESCC). **Methods:** We evaluated the expression of VEGF-C and D in 64 ESCC specimens and assessed the lymphatic vessel density (LVD) in tumor and adjacent tissues by using D2-40 immunostaining. And their relationship with the clinicopathological parameters of ESCC was analyzed. **Results:** The expression of VEGF-C and D was significantly higher in the tumor and adjacent tissues compared with that in the normal control tissue ( $P < 0.01$ ), and their expression was significantly correlated with lymph node metastases ( $P < 0.01$ ), TNM stage ( $P < 0.05$ ) and tumor infiltration depth ( $P < 0.05$ ). LVD was significantly higher in tumor and adjacent tissues than in normal tissue ( $P < 0.05$ ); but LVD was not correlated with the clinicopathological parameters, including lymph node metastasis. In addition, the LVD in the VEGF-C or VEGF-D positive groups was significantly higher than that in the negative group ( $P < 0.05$ ). **Conclusion:** Our results suggest VEGF-C and VEGF-D expression may promote lymphangiogenesis in esophageal carcinoma, contributing to metastasis of ESCC to regional lymph node.

**[KEY WORDS]** esophageal neoplasms; vascular endothelial growth factors; lymphatic vessel density

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食管癌是消化道常见的恶性肿瘤之一,淋巴道转移是其重要转移途径。由于食管黏膜及黏膜下存在广泛的淋巴管丛,食管癌早期易发生转移。大量研究证明,淋巴结转移是食管癌患者重要的预后因素<sup>[1-3]</sup>。因此判断局域淋巴结有无转移,对术后肿瘤复发的预

测、相应治疗方案的制定及食管癌患者的个性化治疗具有重要帮助。但是,目前人们对食管癌淋巴结转移的具体机制尚不清楚。血管内皮生长因子(VEGF)是重要的促淋巴管生成因子,本研究应用免疫组化 SP 法检测食管鳞癌、癌旁及正常黏膜组织中

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