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乳腺癌髓系来源抑制细胞中IDO表达与调节性T细胞相关性及其临床意义的研究

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Clinical Significance of the Correlation between IDO Expression in Myeloid-derived Suppressor Cells and Regulatory T Cells in Breast Cancer

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摘要 研究不同分期乳腺癌组织中CD33+髓系来源抑制细胞(MDSCs)和Foxp3+调节性T细胞(Tregs)的分布情况,探讨MDSCs中吲哚胺2,3-双加氧酶(IDO)表达与Tregs分布关系及其临床意义。方法:收集天津医科大学附属肿瘤医院2005年1月至2007年1月手术患者的乳腺癌石蜡切片50例,采用免疫组织化学单染方法对肿瘤局部CD33+MDSCs和Foxp3+Tregs分布和比例进行检测;采用免疫组织化学双染方法检测肿瘤原位浸润MDSCs中IDO的表达情况;分析MDSCs中IDO表达与Tregs分布、比例及其他临床病理资料之间的相关性。结果:Foxp3+Tregs和CD33+MDSCs细胞在乳腺癌组织中呈散在性分布。MDSCs中IDO表达水平与腋窝淋巴结转移密切相关($P < 0.05$)。Foxp3+Tregs高表达组中MDSCs中IDO表达水平显著高于Foxp3+Tregs低表达或不表达组($P < 0.05$)。结论:MDSCs中IDO过表达可能有利于Tregs的募集和乳腺癌的转移。

关键词: 髓系来源抑制细胞 调节性T细胞 吲哚胺2,3-双加氧酶 乳腺癌 免疫抑制

Abstract: Myeloid-derived suppressor cells (MDSCs) are the important inhibitory immune cells in the tumor microenvironment that are directly involved in tumor immune escape and metastasis. This study aims to determine the distribution of CD33+MDSCs and regulatory T cells (Foxp3+Tregs) in breast cancer tissues, to detect IDO protein expression in CD33+MDSCs, and to analyze the correlation between IDO expression in MDSCs and distribution of Foxp3+Tregs in breast carcinoma tissues, as well as their clinical significance. Methods: Paraffin-embedded samples were collected from 50 breast cancer patients who underwent surgery in Tianjin Medical University Cancer Institute and Hospital between January 2005 and January 2007. The distribution of CD33+MDSCs and Foxp3+Tregs in the breast cancer tissues of different stages was evaluated using immunohistochemical staining (IHC). The protein expression and cell localization of CD33 and Foxp3 were detected using the single-dye IHC method, whereas the IDO expression in the CD33+MDSCs was detected using the double-dye IHC method. The correlation between IDO+MDSCs and Foxp3+Tregs in breast carcinoma samples and the relationship among the clinicopathologic features was analyzed. Results: The Foxp3+Tregs and CD33+MDSCs were sporadically distributed in the breast cancer tissues. The IDO expression levels in the MDSCs were closely correlated with axillary lymph node metastasis ($P < 0.05$). More Foxp3+Tregs were observed in the cancer tissues with higher IDO expression levels in MDSCs compared with tissues with lower IDO expression levels ($P < 0.05$). Conclusion: IDO expression in MDSCs might benefit the recruitment of Tregs and promote the metastasis of breast cancer.

Key words: Myeloid-derived suppressor cells Regulatory T cells Indoleamine 2,3-dioxygenase Breast cancer Immunosuppression

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