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THE RELATIONSHIP BETWEEN THE EXPRESSION ACTIVITY OF GENES ENCODING VIMENTIN AND ACTIN-BINDING PROTEINS IN PATIENTS WITH SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK WITH LYMPHOGENOUS METASTASIS.

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ABSTRACT

Aggressive head and neck squamous cell carcinoma is characterized by a high metastatic potential, with the epithelial-mesenchymal transition acting as a central driving process. The epithelial-mesenchymal transition during metastasis is driven by the remodeling of the cytoskeleton, primarily through the action of actin-binding proteins. There are no available methods for assessing the risk of head and neck squamous cell carcinoma metastasis; therefore, the study of the molecular characteristics of head and neck squamous cell carcinoma metastasis remains extremely relevant. The purpose of the study was to examine the relationship between the mRNA expressions of vimentin and actin-binding proteins (cofilin-1, profilin-1, adenylate cyclase-associated protein 1, fascin-1 and ezrin) in tumor tissue of head and neck squamous cell carcinoma patients with lymph node metastases.

Material and Methods: The analysis was carried out using RT-PCR in paired samples from The analysis was performed using reverse transcriptase PCR in paired samples from 44 patients with head and neck squamous cell carcinoma: Thirty seven patients with laryngeal squamous cell carcinoma and seven patients with oropharyngeal squamous cell carcinoma. All patients were divided into subgroups with and without lymph node metastases.

Results: Profilin-1 mRNA levels were found to be seven times higher in patients with lymph node metastases than in patients without metastases. Ezrin mRNA levels were not correlated with lymph node metastasis, but correlated with tumor stage. Vimentin mRNA levels were independent of disease stage and the presence of lymph node metastasis. High vimentin mRNA levels correlated with elevated expression of fascin-1 and adenyl cyclase-associated protein 1 and contributed to a stronger association between cofilin-1 and profilin-1.

Conclusion: Thus, the relationship between vimentin and actin-binding protein gene expression indicates active cytoskeletal reorganization during head and neck squamous cell carcinoma metastasis.

KEYWORDS: epithelial-mesenchymal transition, actin-binding proteins, head and neck squamous cell carcinoma, vimentin, intermediate filament proteins, metastasis

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