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POTENTIAL OF microRNAs AS A BIOMARKER FOR LARYNGEAL CANCER

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ABSTRACT

Objective: Laryngeal malignancy known as the most frequently diagnosed cancer between head and neck tumor, covering 2.4% of all tumors and is the 11th most occurrence and deadliest tumor in the world. Research has shown that microRNAs (miRNAs) play a considerable role in the development of laryngeal malignancy. Moreover, studies also focus on the relationship between clinical relevance and miRNA deregulation in cancer illness. According to recent evidence, miR-205, miR-126, miR-302, and miR-132 have possible roles in the carcinogenesis process of the LSCC. Therefore, in this research, we aimed to investigate whether there are any considerable changes in the microRNAs expression level and also if they have any remarkable potential as a prognostic or diagnostic biomarker for laryngeal squamous cell carcinoma (LSCC).
Methods: Thirty LSCC patients were included in this research, and tumor tissues and healthy normal tissues were collected during laryngectomy. Total RNA extraction from the normal and cancer tissues was accomplished and after the quality control, cDNA was synthesized, and finally, target miRNAs expression was determined by qPCR. The expression level of genes and their relationship with the patient's clinicopathological characteristics were analyzed using appropriate statistical tests.
Results: According to the study results, miR-302 (fold change: 1.o5, P-value = 0.0001) and miR-132 (fold change: 1.28, P-value = 0.0001), is considerably overexpressed in cancer tissues compare to normal peripheral tissues. We also found that miR-126 (fold change: 0.251, P-value = 0.0001) and miR-205 (fold change: 0.241, P-value<0.0001) is down-regulated in LSCC tumor tissue. Among these microRNAs, only mir-205 expression had no association with clinical-pathological features in tumor tissue.
Conclusion: The results of this research revealed the potential of the miR-302, miR-132, miR-126, and miR-205 as prognostic or diagnostic biomarkers in LSCC.
Keywords: Laryngeal cancer, Micro-RNAs, Biomarker

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