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[redacted] of miR-101 and miR-744 in nasopharyngeal carcinoma in Pahang State of Malaysia (Article)

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Abstract

Previous study found that microRNA-101 (miR-101) and microRNA-744 (miR-744) were deregulated in head and neck cancers and were implicated in nasopharyngeal carcinoma (NPC) carcinogenesis. Thus, this study aimed to determine the expression of miR-101 and miR-744 in NPC and analyse the utility of these microRNAs (miRNAs) as diagnostic biomarkers. Total RNA was extracted from 31 NPC and 7 non-NPC control formalin-fixed paraffin-embedded (FFPE) samples. Complementary DNA (cDNA) was synthesized from the total RNA and proceeded with quantitative real-time polymerase chain reaction. Differential expression of miR-101 and miR-744 were calculated from quantification cycle (Cq) data using 2-ΔΔCq calculation. The performance of these miRNAs were calculated using receiver operating characteristic (ROC) curve analysis. The differential expression for miR-101 and miR-744 were -1.39 ($p < 0.05$) and 2.48 ($p > 0.05$), respectively, where the deregulations were consistent with the previous report. The area under curve for miR-101, miR-744 and combination of miR-101 and miR-744 were 0.654 (95 % CI: 0.465 - 0.844), 0.588 (95 % CI: 0.368 - 0.808) and 0.626 (95 % CI: 0.481 - 0.771), respectively. However, re-analysis using balanced sample size between NPC and non-NPC control group showed the value decreased to 0.653 (95 % CI: 0.347 - 0.959) for miR-101 but increased to 0.827 (95 % CI: 0.601 - 1.000) for miR-744 and 0.758 (95 % CI: 0.576 - 0.939) for the combination of miR-101 and miR-744, indicating the importance of having a balanced sample size. We have successfully determined the expression of miR-101 and miR-744 in NPC samples. We also demonstrated statistically the utility of these miRNAs as diagnostic biomarkers.

SciVal Topic Prominence

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