Investigation of FoxM1 Gene Expression in Breast Cancer and Its Relationship with miR-216b-5p Expression Level

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Abstract : Background: breast cancer remains a critical global health issue, constituting a leading cause of cancer-related mortality in women. MicroRNAs (miRs) are natural RNA molecules that play an important role in cellular processes and regulate post-transcriptional gene expression. MiR-216b-5p is a miR that acts as a tumor suppressor. The expression levels of FoxM1 and miR-216b-5p in malignant and control cells have been evaluated by quantitative polymerase chain reaction (qPCR) technique and flow cytometry. Results: the results of this study revealed a significant downregulation of miR-216b-5p in cancerous cells compared to the control MCF-10A cells (P=0.0004). Interestingly, the expression of miR-216b-5p exhibited an inverse relationship with key clinical indicators such as tumor size, grade, and lymph node invasion. Conclusion: The study's findings showed the prognostic value of miR-216b-5p levels in breast cancer, and its reduced expression correlates with unfavorable tumor characteristics. This research recommends performing more studies on the role of FoxM1 and miR-216b-5p in breast cancer pathology which potentially paving the way for targeted therapeutic interventions.

Keywords : breast cancer, gene expression, FOXM1, microRNA
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