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Role of circulating micro RNAs in metastasis and sorafenib resistance of hepatocellular carcinoma (HCC)

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Hepatocellular carcinoma (HCC) is second leading cause of cancer related deaths worldwide. Metastasis and sorafenib resistance confers substantial burden to HCC patients. Besides, there are no sensitive biomarkers currently available to mark the prognosis of the disease and response to sorafenib. Micro RNAs (miRNAs) are one of the biomolecules investigated extensively in the recent years for their role in HCC. Nonetheless, there are only limited reports on the role of miRNAs in advanced stages of HCC. In this study, we have made an attempt to understand the prognostic role of three miRNAs (miR-21, miR-192, and miR-199) in HCC metastasis and sorafenib resistance. The serum miRNA levels were checked in HCC patients (n=70) using qRT-PCR and the levels of miR-192 and miR-199 were found to be significantly ($p < 0.05$) upregulated in metastatic HCC patients compared to non metastatic patients. Further, levels of miR-192 were upregulated in sorafenib resistant HCC patients as compared to sorafenib sensitive patients, whereas miR-199 showed decreased expression levels. Moreover, the ROC analysis of miR-192 and miR-199 revealed high sensitivity and specificity. Nevertheless, miR-21 did not show significant deregulation. Furthermore, to correlate their expression at intracellular levels, we developed sorafenib resistant HCC cell line (HepG2) and checked the expression of the same. We found a marked increase in the expression of both micro RNAs ($p < 0.001$). Hence, this study unveils; miR-192 and miR-199 might be useful as response and prognostic biomarkers in HCC. However, additional investigations are required to shed light on prognostic potential of different miRNAs in advanced HCC.

Biography

S Kanthaje has completed her MTech in Biotechnology from Dr. D.Y. Patil University, Mumbai, India, and currently pursuing PhD from the Department of Experimental Medicine and Biotechnology, PGIMER, Chandigarh, India. Presently, she is working on the role of micro RNAs in hepatocellular carcinoma. Additionally, she has attended few national and international conferences as well as workshops during her BTech, MTech, and PhD tenure, and presented poster/oral presentations. Before joining PhD, she worked as a Junior Research Fellow at ACTREC, Mumbai, India, a premier cancer research institute and have a paper published.

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