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Study of Circulatory MiR-122 and MiR-130a Expression among Chronic Hepatitis C Egyptian Patients

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Abstract : The stability of microRNA (miR) in the circulation can show a great progress toward the discovery of non-invasive diagnostic and prognostic biomarkers in many diseases. In the present study, circulatory miR-122 and miR-130a were analysed in chronic hepatitis C Egyptian patients in predicting the clinical outcome of interferon treatment. In addition, their expression levels were correlated to viral RNA levels, necro-inflammatory markers (AST, ALT) and to each other. This study was conducted on 51 subjects where 36 were chronic HCV patients in which they were divided into naive and interferon treated HCV patients (responders and non-responders) and 15 matched healthy controls. Serum quantification of miR-122 and miR-130a were performed by quantitative Real-time Polymerase Chain Reaction (qRT-PCR). The results showed a significant upregulation of miR-122 in non-responder patients (P=0.049). By receiver operating characteristic analysis curve, miR-122 revealed 65% sensitivity and 92.3% specificity in predicting non-responsiveness of patients to IFN treatment, while miR-130a showed a sensitivity of 100% and specificity of 53.85%. Remarkably, there was a significant positive correlation between miR-122 and miR-130a in naive HCV patients (r=0.714, p=0.003). However, there was no significant correlation between serum miR-122, miR-130a expression levels and necro-inflammatory markers (AST, ALT). To conclude, miR-122 and miR-130a have a significant association with viral RNA levels and accordingly, they may have a synergistic power in promoting viral replication. Interestingly, miR-122 and miR-130a have a predictive power in predicting clinical outcome of IFN treatment which can be further studied in currently used drugs in order to reduce the socio-economic burden of potentially non-responders.

Keywords : hepatitis C, microRNA, miR-122, miR-130a
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