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Simvastatin prevents liver inflammation and fibrosis in acute and sub-chronic biliary obstruction: Immanent anti-inflammatory role of miRNA-122 in cholestatic hepatitis and fibrosisOmnyah A El-Kharashi¹, Enas S Nabih¹, Ghada Galal Hamam¹ and Dalia A A El-Waseef¹¹Ain Shams University, Egypt

Background: The mechanism of liver injury and the pathways involved in cholestatic hepatitis and fibrosis differ according to the onset of bile duct obstruction.

Aim: We aimed to study the effect of simvastatin on microRNA-122 (miR-122) and High Mobility Group Protein 1 (HMGB1)/Receptor for Advanced Glycation End product (RAGE)/Nuclear Factor kappa B (NFκB)/Tumor Necrosis factor α (TNFα) axis in acute and subchronic cholestatic liver injury.

Material & Methods: Liver injury was performed by Bile Duct Ligation (BDL) in Wistar rats. Saline and simvastatin were orally administrated starting one week before BDL. After Portal Pressure (PP) measurement, liver and blood samples were collected and subjected to molecular and histological evaluation in two separate studies; after 72 hours and after 28 days.

Results: We found that BDL produced acute inflammatory reaction with deteriorated liver function significantly. After 28 days, the liver fibrosis was evident with marked elevation in PP. The daily oral administration of simvastatin was protective against the occurrence of cholestatic hepatitis and fibrosis. This was evident from the results of PP measurements, biochemical parameters and histological examination. Simvastatin induced a significant increase in the expression of miR-122 compared to the untreated group which resulted in suppression of HMGB1/RAGE, NFκβ/TLR9/TNFα inflammatory pathway.

Conclusion: We thought that simvastatin interference with the HMGB1 inflammatory pathway through enhancement of miRNA-122 expression could have a potential protective effect on the liver in biliary obstruction.

Biography

Omnyah A. El-Kharashi has completed her MD Pharmacology from Ain Shams University. She is currently working as an Associate professor in clinical pharmacology department, faculty of medicine, at Ain Shams University. She has published several international publications.

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