DIFFERENTIALLY REGULATED URINARY PROTEINS AND THEIR MODIFICATION STATUS SERVE AS NON-INVASIVE BIOMARKER FOR EARLY DIAGNOSIS AND CHARACTERIZATION OF DRUG-INDUCED LIVER INJURY (DILI)

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Background & Aim: DILI is a frequent side effect of many drugs, but the diagnosis is mainly by exclusion of other causes as there are no specific biomarkers to diagnose DILI. This is the non-invasive methods to identify proteomic signature and determine urinary micro-albumin (µA).

Materials & Methods: Early morning urine samples from successive patients with biopsy proven DILI (n=40), age and sex matched healthy controls (HC), (n=40) were collected at ILBS from September 2017. Out of the 40, 10 had hepatocellular, 15 cholestatic and 15 mixed types of DILI based on 'R' value >5, <2 or between 2-5 respectively at baseline LFT and concentrate 50 ml of urinary by 3 kDa filter tube for label free quantification-mass spectrometry (LFQ-MS) and urinary µA analyses were done.

Results: Urinary µA level was significantly higher in DILI [50 mg/dl] compared to HC [0.17mg/dl] (p<0.05) at baseline. The author did LFQ-MS analysis of urine samples from each individual group and they identified more than 1900 proteins. And they have done the comparative analysis in different three types of DILI with HC and they found as 1292 were common, 235 found only in HC and 333 different in DILI, in cholestatic compared to HC, 57 common and 21 unique to cholestatic. Also they have analysed cholestatic with hepatocellular, cholestatic with mixed type of DILI. We further analysed samples abundance, Venn diagram, PCA plots, abundance plot and biological process. He used STRING pathway of differentially expressed proteins to characterization, significant function and clinical role of differentially expressed proteins in DILI, which were unique to DILI, like protein AMBP, Zinc-alpha-2, Kininogen, Mannan-binding lectin, Fibronectin, CD59 glycoprotein etc. functions were assessed in the Uniprot database.

BIOGRAPHY

Md Shabir Hussain has completed his PhD in Biomedical Sciences from Sai Nath University, and ILBS, India. He is the SERB National Post-Doctorate Fellow and Principal Investigator of the Project "Proteomics Study of Drug-Induced Liver Injury (DILI) For Identification of Non-Invasive Biomarkers" which has been funded by SERB, DST, Government of India. He has 11 publications that have been cited over 110 times and has published several original research articles in high impact factor international journals. His area of interest is in Multi-OMICS and he is doing his research on Proteomics, transcriptomics and metabolomics.

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