OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Metabolomics & Systems Biology
April 08-10, 2013 Hilton Chicago/Northbrook, USA

Serum acylcarnitines as potential biomarkers of acetaminophen toxicity in the pediatric population

Sudeepa Bhattacharyya
University of Arkansas for Medical Sciences and Arkansas Children's Hospital Research Institute, USA

Acetaminophen (APAP) is the most common cause of acute liver failure (ALF) in the US and Great Britain. While the incidence of APAP-related ALF in children is less than that of adults, APAP remains a significant contributing factor to pediatric ALF. Metabolism, glutathione depletion, and formation of APAP-protein adducts are recognized components of the toxicity. Other molecular events are likely important and may contribute to individual susceptibility and risk. Acylcarnitine metabolism has been implicated in mouse models of APAP toxicity suggesting APAP treatment can potentially disrupt fatty acid β-oxidation and distinct from serum aminotransferase activity and hepatic glutathione levels, acylcarnitines can function as complementary biomarkers for APAP-induced hepatotoxicity. Here we present data on changes in serum acylcarnitine levels in children and adolescents, aged 2-18 years, that have been exposed to low doses or high doses of APAP ("therapeutic" versus "toxic" exposures) and compare the acylcarnitine profiles to other recognized indicators of toxicity, serum alanine aminotransferase (ALT), aspartate aminotransferase (AST) and the APAP-protein adducts.

Biography

Sudeepa Bhattacharyya is an Assistant Professor of Biostatistics and Bioinformatics in the department of Pediatrics, UAMS. Prior to joining UAMS she worked in industry and the National Center for Toxicological Research (Food and Drug Administration, USA). She has over 10 years' experience in the field of biomarker discovery using 'omics' data. One of her current research interests involves integrating metabolomics to other 'omics' platforms to understand disease and toxicity using high-throughput systems biology approach.

SBhattacharyya2@uams.edu