IS14. THE FUTURE OF FORENSIC MEDICINE AS A MEDICAL SPECIALTY IN GREECE AND IN THE EU

Habibul AHSAN

The University of Chicago, Chicago, IL, USA

Human exposure to arsenic is a major public health issue in many countries. A wide range of health effects including cancer, cardiovascular and respiratory diseases are implicated with human exposure. While the health risks are widely known, the molecular and genomic basis of arsenic exposure, metabolism and toxicity in human is not well understood. We have conducted some of the largest and most comprehensive investigations investigating these aspects. First, we identified the AS3MT gene (arsenite methyltransferase; 10q24.32) variants to be associated with arsenic metabolism and toxicity. In a follow-up investigation, we are sequencing the AS3MT gene among a large number of participants from Bangladesh and US to identify variants in the gene that predicts disease risks. Among a large sample of participants with available genome-wide SNP, gene expression and DNA methylation data, we evaluated differential gene expressions and methylations in relation to arsenic exposure. These analyses identified a large number of arsenic-associated genes from various biological pathways, revealing a number of molecular targets of arsenic exposure in humans. In conclusion, our integrated toxicogenomic analyses identified specific genetic susceptibility variants as well as arsenic-associated differentially methylated and expressed genomic signatures which may inform mechanisms underlying arsenic metabolism and toxicity and also potential pathways for future interventions.

* habib@uchicago.edu