ISSN: 2576-3962
Volume-07
Journal of Nephrology & Renal Diseases

https://www.scitechnol.com/nephrology-renal-diseases.php

Title: Effects of exposure to organophosphate pesticides on renal function and metabolomic signatures of patients with chronic kidney disease

Yu Chi Hung
National Cheng Kung University Hospital, Taiwan

Received Date: : 29-11-2022 Accepted Date: 01-12-2022 Published Date: 25-06-2023

In Taiwan, Organo-Phosphates Pesticides (OPPs) account for a quarter of the total use of the registered pesticides in Taiwan. Six Dialkyl Phosphates (DAP) metabolites are excreted in the urine after people expose to OP pesticides. OP may inhibit the activity of acetylcholinesterase in the body and then exhibits toxic effects on the nervous system, liver and kidneys. The possible effects of OP residues in crops on sensitive groups have attracted much attention in recent years. Blood circulation, electrolyte balance and excretion in kidneys are partly controlled by cholinergic; therefore, exposure to OP pesticides may impair renal function.

High dose exposures in short period may cause acute kidney injury and long-term exposure to OP pesticides may affect the progression of Chronic Kidney Disease (CKD). Some studies have observed an association between urine biomarkers of pesticide and CKD, however, no metabolomic study focus on the effects of exposure to OP pesticides on CKD patients, Followed by untargeted metabolomic analysis in plasma and urine using an UPLC Q-TOF-MS. Then to identify the differential metabolites related to disease and phenotype to figure out their related biological metabolic pathways.

This study aims to investigate the effects of exposure to OPs on metabolic pathways and disease progression in CKD patients in three to five stages. Therefore, a cohort study for CKD will be conducted and both urine and blood were collected from patients with CKD in three to five stage.

Finally, to explore the correlation of 8-OHdG concentrations, CKD progression and also specific biological metabolic pathways after exposing to organophosphate pesticides in patients, In the future, it is hoped that finding potential biomarkers related to diet and living habits, it is expected to delay the progression of CKD patients into End-Stage Renal Disease (ESRD).

Keywords: Chronic kidney disease, Organophosphate pesticides, Metabolomics, Oxidative stress, Renal function

Biography

Yu Chi Hung, With a background in the department of Food Science before, she committed herself to solving problems in food safety, the factors that need to be considered and the level of evaluation often involve food chemistry, food microbes and food processing, it is necessary to understand the hazards that will occur during the food manufacturing process to further control safety.