THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

Abstract Submission No.: A-0838

Metabolomic profiles in urine and blood revealed differences in metabolic pathways among patients with varying degrees of kidney dysfunction

Hongquan Peng, Chiwa Aoieong, Tou Tou , Tsungyang Tsai
Department of Internal Medicine-Nephrology, Kiang Wu Hospital , Macau

Objectives : Biomarkers in urine and blood change with the progression of kidney disease. This study aimed to explore the metabolic pathways and their relative metabolites in the urine and blood of patients with different levels of kidney dysfunction.
Methods : A total of 144 samples were collected and classified into four groups based on the patient's measured glomerular filtration rate (mGFR). An untargeted metabolomics study of 144 urine and blood samples was performed using ultrahigh-performance liquid chromatography tandem mass spectrometry (UPLC–MS/MS).
Results : Blood metabolism analysis clearly discriminated patients with varying degrees of kidney dysfunction from urine metabolism analysis. In the urine, the metabolic pathways of steroid hormone biosynthesis, vitamin B6 metabolism, and glutathione metabolism were revealed to be related to different levels of kidney dysfunction. In blood, the associated metabolic pathways were involved in steroid hormone biosynthesis, vitamin B6 metabolism and glutathione metabolism.
Conclusions : This study provides a comprehensive profile of the metabolic changes in the urine and blood of patients with varying degrees of renal dysfunction through untargeted metabolomics analysis. The novel biomarkers found in urine benefit the prediction of renal function through non-invasive sampling.

Figure 1. Volcano plot of the differential metabolites expression in urine..jpg

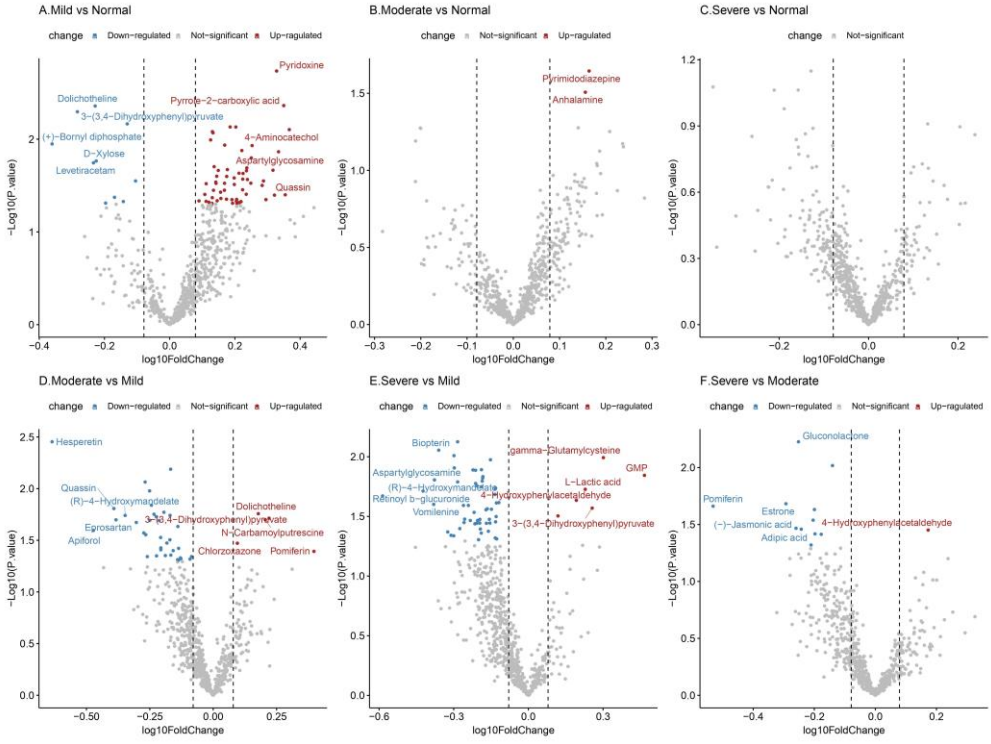

Figure 1. Volcano plot of the differential metabolites expression in urine..jpg