Results show that principal component analysis (PCA) can clearly separate the HF animals form control group. The metabolic spectrums in two groups are significantly different. The enriched KEGG biological pathways results suggest that the patterns involved in dysfunction of energy metabolism including Glucose and lipid disorders. After operated for 4 days, 21 days and 45 days, blood metabolites have changed significantly between model and sham group. Lipid metabolites such as hexadecanoic acid and octadecanoic acid and à-D-glucopyranoside in glucose metabolism are up-regulated obviously; especially the Citric acid in energy metabolism have been up-regulated seriously.

Conclusions Glucose metabolism and lipid metabolism disorders reinforce each other, resulting a deterioration of citric acid cycle in CHD with HF; citric acid, à-D-glucopyranoside, hexadecanoic acid, and octadecanoic acid contributed most to the syndrome classification together, and they may be used as clinical diagnosis pattern for CHD with HF. These findings also provided the substantial foundation for exploring the scientific connotation of CHD with HF.

Laboratory science and biological markers of cardiovascular disease

GW23-e2687 | **METABOLOMIC PROFILING REVEALS DISTINCT PATTERNS OF TCA DISORDERS ON THE PROCESS OF CORONARY HEART DISEASE WITH HEART FAILURE**

[1]Chun Li, [1]Yong Wang, [2]Qi Qiu, [1]Yulin Ouyang, [1]Wenjing Chuo, [3]Junda Yu, [1]Shuzhen Guo, [1]Chun Li. [1]*Beijing University of Chinese Medicine;* [2]*Capital Medical University Beijing An Zhen Hospital;* [3]*Southern Illinois University School of Medicine*

Objectives Heart failure (HF) is a leading cause of morbidity and mortality worldwide and the mechanism of this syndrome is very complex. To make fast and accurate diagnosis and treatment of coronary heart disease (CHD) with heart failure is a main problem in our society. The syndrome is traditionally diagnosed based on ultrasound and laboratory testing. But heart failure without symptoms can be difficult to diagnosis. The aim of this study is to establish characteristic diagnosis pattern and look for new insights into different courses for HF. At the same time, to reveal what's underlying molecular mechanism and potential biomarkers in the microcosmic level of HF is another objective.

Methods Coronary Heart Disease with heart failure animal model is preparation through the left coronary artery ligation. Cardiac function is judged by the collection of dynamic observation and behavioural indicators at different disease phrase use the ECG and ultrasound. Then Gas chromatography coupled with mass spectrometry (GC-MS) and pattern recognition are applied to analyse spectra of CHD with HF after operated 4 days, 21 days and 45 days. The enriched KEGG biological pathways are analysed to explore the underlying molecular mechanism of the HF.