Contribution ID: **37** Type: **Poster presentation**

Determinants of circulating acylcarnitine concentrations in healthy participants of the European Prospective Investigation into Cancer and Nutrition study

Monday, 22 March 2021 17:00 (6 minutes)

Introduction: Acylcarnitines (ACs) play a key role in the transport of fatty acids in the cell and in energy metabolism. Their concentrations in blood have been associated with risk of diseases such as cancer and type 2 diabetes. Diet and lifestyle factors have been shown to influence AC concentrations but a more detailed knowledge of their determinants is needed.
Methods: Fifteen and forty-two circulating ACs were measured in blood by targeted and untargeted metabolomics in 7104 and 395 healthy participants of the European Prospective Investigation into Cancer and nutrition (EPIC) study, respectively. Associations with participants characteristics such as age and sex, fasting status, dietary patterns, intake of food and fatty acids, and with circulating fatty acids and amino acids were assessed.
Results: Fasting state, age, sex and diet explained a large fraction of AC variance. Circulating long chain fatty acids and foods containing particular fatty acids were associated with the corresponding AC species. Concentrations of C3 and C5 were highly associated with branched chain amino acids and decreased during fasting whereas other ACs increased. Intake of most foods and carnitine, physical activity and smoking showed little association with AC levels.
Conclusions: Our results suggest that most ACs are mainly influenced by participant characteristics and that determinants are specific for different AC species. These identified determinants of ACs will help interpret their associations with disease risk and can inform on potential confounders for which these studies should adjust.

Primary author: WEDEKIND, Roland (IARC)

Co-authors: SCALBERT, Augustin (IARC); HUYBRECHTS, Inge (IARC)

Presenter: WEDEKIND, Roland (IARC)

Session Classification: Poster session