

Prehypertension induce elevation in metabolites with oxidative stress and Lp-PLA2 activity

Minkyung Kim, Minjoo Kim, Miso Kang, Hye Jin Yoo and Jong Ho Lee
Yonsei University, Korea

Prehypertension can develop hypertension and atherosclerosis which represents early cardiovascular disease. Therefore, it is essential to understand the role of prehypertension in metabolic alterations. We compared plasma metabolites in subjects who maintained prehypertension (n=51) and age- and gender-matched controls who maintained normal blood pressure (n=51) during 3-year follow-up period. The prehypertension group indicated significantly higher intensity in lysophosphatidylcholines (lysoPCs; C14:0, C16:1, C16:0, C18:2, C18:1, C18:0, C20:5, C20:4, C20:3, and C22:6), and higher levels in Lp-PLA2 activity, oxidized LDL, interleukin-6, 8-epi-PGF2 α , and brachial-ankle pulse wave velocity (ba-PWV) than control group. Statistical significance were remained after adjusting BMI, waist hip ratio, smoking and drinking, lipid profiles, fasting blood glucose, and insulin. The most important plasma metabolites to discriminate two groups was lysoPC (16:0), which showed positive and independent correlations with blood pressure. In contrast to control group, lysoPC (16:0) showed positive correlations with oxidized LDL, Lp-PLA2 activity, interleukin-6, 8-epi-PGF2 α , and ba-PWV after adjusting for confounding factors in the prehypertension group. These results suggest that maintaining prehypertension status could induce alteration in plasma metabolites and these are associated with oxidative stress, inflammation, and Lp-PLA2 activity.

Biography

Minkyung Kim is a Doctoral student working at Nutrigenetics/Nutrigenomics lab in the Department of Food and Nutrition at Yonsei University with Professor Jong Ho Lee. She has published 4 papers in reputed journals and presented 5 papers at international conferences.

mkkim0106@yonsei.ac.kr

Notes: