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Genome-wide interaction study of alcohol consumption on blood pressure: The Korean genome and epidemiology study (koges)_Ansan and Ansung study

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Background: Heavy alcohol drinking is a known risk factor for hypertension, however, little is known about the interaction of gene-alcohol consumption on the blood pressure. We carried out the Genome-wide gene-environment interaction (GEI) analysis in order to find significant SNPs that interacted alcohol consumption on blood pressure.

Methods: The data were from the Ansan-Ansung community-based cohort in Korean genome and epidemiology study (KoGES) consisting of epidemiologic data and genome-wide SNPs data among 10,030 study participants aged 40-69 years old. Gene-alcohol interaction analysis on blood pressure was analyzed by multiple linear regression in PLINK in men study participants. The blood pressure was represented by two traits of systolic blood pressure (SBP), diastolic blood pressure (DBP). 10% False Discovery Rate (FDR) was considered to determine significant SNPs in this analysis.

Results: The 15 index SNPs showed significant interaction (10% FDR, $P < 9.07e-07$) with alcohol consumption on DBP in men participants.

Conclusion and Discussion: Among the 15 findings in this analysis, two index SNPs, rs1297184 (LGR5) and rs78333128 (RSPO3) were known to be involved Renin-angiotensin system on blood pressure regulation. However, there have been no reports about its interaction with alcohol consumption on blood pressure. Thus, this finding could contribute to explain blood pressure regulation by interaction of gene-alcohol consumption.
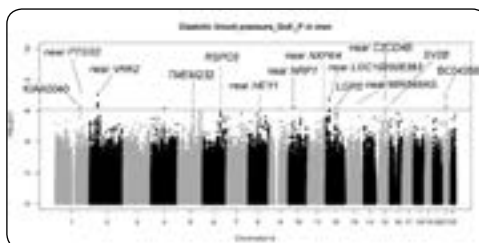
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4. Shaikh, L.H., et al. (2015), LGR5 activates noncanonical Wnt signaling and inhibits aldosterone production in the human adrenal. The Journal of Clinical Endocrinology & Metabolism 100(6): E836-E844.

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Biography

Youngjun Kim has his expertise in evaluation and passion in improving the public health and wellbeing. He works in Cheil General Hospital & Women's Healthcare Center as a researcher and studies epidemiology in doctoral course.

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