

The association between carbon and nitrogen stable isotope ratios of human hair and cardiovascular risk factors

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It has been reported that stable isotopic ratios can be used as biomarkers for animal protein intake. A high protein or meat intake could be a risk factor for metabolic disorders. We investigated whether the carbon or nitrogen stable isotopic ratio of human hair is associated with cardiovascular risk factors. We conducted a cross-sectional study within the Korean Genomic Rural Cohort Study in 2011. Hair samples from 399 subjects (233 men and 166 women) aged 40 and over were measured for carbon [$\delta^{13}\text{C} = \{(^{13}\text{C}/^{12}\text{C})_{\text{sample}} / (^{13}\text{C}/^{12}\text{C})_{\text{Pee dee Belemnite}} - 1\}$] and nitrogen [$\delta^{15}\text{N} = \{(^{15}\text{N}/^{14}\text{N})_{\text{sample}} / (^{15}\text{N}/^{14}\text{N})_{\text{Air}} - 1\}$] stable isotopic ratios. Cardiovascular risk factors, including anthropometrics, blood pressure, serum adiponectin, leptin, gamma-glutamyltransferase were measured. Men showed a negative correlation between $\delta^{15}\text{N}$ and serum adiponectin, a positive correlation between $\delta^{15}\text{N}$ and serum leptin. Women showed a positive correlation between $\delta^{15}\text{N}$ and serum leptin. On multivariable models, $\delta^{15}\text{N}$ was negatively associated with serum adiponectin in men and positively associated with serum leptin in women. The $\delta^{15}\text{N}$ value of human hair might be a surrogate marker associated with cardiovascular risk factors.

Biography

Song Vogue Ahn has completed his MD and PhD from Yonsei University. He is working as an Associate Professor at the Department of Preventive Medicine, Yonsei University Wonju College of Medicine and Director of the Institute of Genomic Cohort, Yonsei University. He has published more than 35 papers in reputed journals and has been serving as an Editorial Board Member of the repute.

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