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From nutri-genetics to personalized nutrition

Vimal Karani S
University of Reading, UK

The ability of nutri genetics to determine what nutrients will produce the desired impact on metabolic balance (as influenced by individual genetic make-up) is at the core of personalized nutrition. Metabolic diseases such as obesity and diabetes are heritable traits that arise from the interactions between multiple genes and lifestyle factors such as diet and physical inactivity. Dietary factors play an important role in the development of metabolic diseases because of the variation in the food that is being consumed in different parts of the world. Although several studies have examined the gene-nutrient interactions, the findings have been quite inconsistent and hence, unable to develop an optimum diet for each ancestral population. Some of the challenges in performing nutrigenetics research are 1) genetic heterogeneity, 2) lack of understanding of the metabolic pathways and 3) insufficient sample size. With genome-wide association study (GWAS) data now available on numerous large cohorts, it has become possible to embed candidate gene studies within GWASs, testing for association on a much larger number of candidate genes than previously possible. The talk will highlight three main aspects: 1). Why gene-diet interaction analysis is done?–Findings from DiOGenes study, 2). Why large samples are required to conduct genetic epidemiological studies?–Findings from D-CarDia Collaboration and 3). Nutrigenetics in developing countries–Findings from Genuine Collaboration

Biography

Vimal Karani S is a Lecturer in Nutrigenetics at the University of Reading, UK. He has obtained his Post-doctoral training at the MRC Epidemiology unit (Cambridge, UK) and University College London (UK). He has an interdisciplinary academic background, with qualifications from Medical Genetics, Bioinformatics, Molecular Biology and Genetic Epidemiology. His primary research interests focus on the investigation of gene-nutrient interactions on metabolic- and CVD-related outcomes using combined approaches from genetic epidemiology, statistical genetics and molecular biology. His long term goal is to use the findings from observational studies to carry out human intervention studies with a view towards developing industrial collaborations to facilitate 'Personalized Nutrition'.

v.karani@reading.ac.uk