Metabolomics 2016, 6:2(Suppl)
http://dx.doi.org/10.4172/2153-0769.C1.032

Personalized nutrition a myth or reality: Application of nutritional metabolomics for better health and healthcare

Yashwant Pathak
University of South Florida Health, USA

Recent developments in nutritional sciences are concluding that the diseases of the modern days such as diabetes, heart diseases, thyroid, cancer, are significantly influenced by the dietary patterns. Nutrition goes beyond ameliorating or curing diseases and encompasses with objective to prevent diseases and improve health of entire populations consequently providing an improved healthcare at lower costs. Comprehensive analysis of human metabolomes provides basis for revised nutrition patterns for human beings. Major likelihood of future diseases within the contexts of individuals overall health and casual risk can be identified and appropriate steps can be undertaken in individual dietary intakes leading to avoidance of homeostasis and maintain a better metabolic at individual level. Cultural and lifestyle factors can manifest in genetic variations, environmental conditions and dietary habits which in turn dictate individual predispositions to disease and health potential. Human metabotypes are a combination of genetic and environmental factors with diet and lifestyle representing significant sources of diversity. The determinations of metabotypes in human populations will be extremely useful to quantify the physiological and biochemical data to phenotype, genetic and environmental variations. Personalized nutrition will be a reality soon as the data mentioned above will help is understanding the need of an individual based on his or her genetic, environmental and phenotype variations and appropriate nutritional measures will provide means to deal with the expected diseases and augment treatment and prevention. There is a need for better understanding of these principles and may offer a low cost solution for healthcare to all.

ypathak1@health.usf.edu

Point of care diagnosis of bacterial vaginosis by detection of biogenic amines using ion mobility spectrometry (IMS) in a routine ambulatory care gynecology clinic

Simon D Lytton
SeraDiaLogistics Munich, Germany

Purpose: A new CE-marked portable desktop ion mobility spectrometer (VGTest) was used for detection of malodorous biogenic amines indicative of bacterial vaginosis (BV). This study aimed to assess the performance of this testing method for the first time in a routine ambulatory care clinic and to determine the relative levels of biogenic amines in vaginal fluid of BV.

Methods: Vaginal and cervical swabs (n=57) were surveyed for infections. Cases of BV (n=18) confirmed positive according to "Amsel" criteria and normal controls (n=39) showing no infection under clinical examination and testing negative in wet mount microscopy were included in the IMS analysis.

Results: The trimethylamine (TMA) content in vaginal fluid of the BV-positive cases, AUCTMA/AUCTotal [mean 0.215 (range 0.15–0.35)] was significantly higher than normal controls [mean 0.06 (range 0.048–0.07)] p\0.0001. The putrescine (1,4-diaminobutane, PUT) and cadaverine (1,5-diaminopentane, CAD) of BV-positive cases were above controls at borderline significance. The AUCTMA/AUCTotal ratios correlated neither with AUCPUT/ AUCTotal nor AUCCAD/AUCTotal among BV-positive patients. In contrast, among normal controls all the biogenic amines were at a low level and the linear regression analysis revealed striking positive correlations of AUCTMA/AUCTotal with AUCPUT/AUCTotal (p\0.05) and AUCCAD/AUCTotal (p\0.001). The test shows 83% sensitivity and 92% specificity at a cut-off of AUCTMA/ AUCTotal=0.112 and AUC of receiver operator characteristic = 0.915 (0.81–0.97, 95% CI).

Conclusions: VGTest-IMS is accurate and feasible for point-of-care testing of BV in the ambulatory care setting. Further evaluations are in progress to assess the utility of VGTest-IMS for differential diagnosis of candidosis, non-BV infection and common inflammatory conditions.

simon.lytton@t-online.de