Increased Hemoglobin A1c threshold for prediabetes remarkably improving the agreement between A1c and oral glucose tolerance test criteria in obese population

Ying Li
Harbin Medical University, China

It is unclear why the prevalence of diabetes and prediabetes, between diagnosed by oral glucose tolerance test (OGTT) and hemoglobin (A1c) criteria is substantially discordant. We aimed to evaluate the effects of obesity on the agreement between A1c and OGTT for diagnosing diabetes and prediabetes and identify the optimal A1c cut-off values in different BMI classifications. In a population-based cross-sectional study in Harbin, China, 4325 individuals aged 20-74 years without a prior diagnosed diabetes were involved in this study. The performance and optimal cut-off points of A1c were assessed by receiver operating characteristic curve. The contribution of body mass index (BMI) to A1c was analyzed by structural equational model (SEM). The agreement between A1c criteria and OGTT decreased with BMI gain (kappa=0.359, 0.312, and 0.275 in normal weight, overweight, and obese population, respectively). The SEM results showed that BMI was significantly associated with A1c in normal glucose tolerance and prediabetes subjects, but not in diabetes subjects. At a specificity of 80% for prediabetes and 97.5% for diabetes, the optimal A1c cut-off points for prediabetes and diabetes were 5.6% and 6.4% in normal weight, 5.7% and 6.5% in overweight, and 6.0% and 6.5% in obese population. When the new A1c cut-off values were used, the agreement in obese subjects increased almost to the level in normal weight subjects. The poor agreement between A1c and OGTT criteria in obese population can be significantly improved through increasing A1c threshold for prediabetes.

Biography
Ying Li, Professor, PhD and MD, from School of Public Health, Harbin Medical University. She is serving as the council member of Chinese Nutrition Society. She is major in Nutrition and Food Hygiene, and main research interests include research in the association of diet and nutrients with chronic diseases (obesity, diabetes and CVD) in a cohort study, as well as the underlying molecular mechanisms of chronic diseases in terms of diet and nutrients. She has published more than 99 papers in reputed journals, such as Diabetes, Am J Clin Nutr, Int J Obes, Diabetologia and so on.

liying_helen@163.com

Notes: