

Risk factors for type 2 diabetes mellitus preceded by β -cell dysfunction, insulin resistance, or both in older adults the cardiovascular health study

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Abstrak

Insulin resistance (IR) and pancreatic β -cell dysfunction lead to type 2 diabetes mellitus (DM). We tested whether risk factors would differ for DM that was preceded predominantly by IR, β -cell dysfunction, or both among 4,384 older adults (mean age, 72.7 (standard deviation, 5.6) years) in the Cardiovascular Health Study, which was conducted in North Carolina, California, Maryland, and Pennsylvania (1989-2007). When evaluating established risk factors, we found older age, greater adiposity, higher systolic blood pressure, a lower high-density lipoprotein cholesterol level, a higher triglyceride level, and a lower alcohol intake to be independently associated with greater IR but, conversely, with better β -cell function ($P < 0.001$). The prospective associations between some risk factors and incident DM varied significantly depending on whether DM was preceded predominantly by IR, β -cell dysfunction, or both. For example, obesity and lower high-density lipoprotein cholesterol levels were positively associated with DM preceded predominantly by IR (hazard ratio (HR) = 5.02, 95% confidence interval (CI): 2.81, 9.00; and HR = 1.97, 95% CI: 1.32, 2.93, respectively), with a significant association with and an insignificant trend toward a lower risk of DM preceded predominantly by β -cell dysfunction (HR = 0.33, 95% CI: 0.14, 0.80; and HR = 0.78, 95% CI: 0.43, 1.39, respectively). In conclusion, among older adults, DM risk factors were differentially associated with DM preceded predominantly by IR or β -cell dysfunction. Biologic and clinical implications of putative subtypes of DM require further investigation.