

Insulin sensitivity at diagnosis of Type 2 diabetes is not associated with subsequent cardiovascular disease (UKPDS 67)

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Abstract

Aims Insulin resistance is common in Type 2 diabetes which, in turn, is associated with a markedly increased risk of cardiovascular disease. Whether insulin sensitivity measured after diagnosis of diabetes is associated with incident cardiovascular disease was evaluated in this prospective study.

Methods Three thousand five hundred and eighty-two subjects with newly diagnosed diabetes, recruited to the UK Prospective Diabetes Study (UKPDS), free of cardiovascular disease, and with complete information on insulin sensitivity and potential confounders, were followed prospectively to the first occurrence of (i) fatal or non-fatal myocardial infarction, MI (ii) fatal or non-fatal stroke, and (iii) coronary heart disease, CHD (fatal or non-fatal MI, sudden death or ischaemic heart disease). Insulin sensitivity was measured by Homeostatic Model Assessment (HOMA).

Results Insulin sensitivity as measured by HOMA was not associated with subsequent MI, stroke, or CHD in univariate or multivariate models controlling for age, sex, ethnicity, HbA1c, body mass index, plasma triglycerides, cholesterol and smoking. The hazard ratio associated with a doubling of insulin sensitivity with fatal or non-fatal MI in a multivariate model was 0.92 (95% confidence interval, CI, 0.801.05). These results were not changed by the exclusion of overweight patients randomized to metformin.

Discussion Estimation of insulin sensitivity provides no additional useful information with respect to the risk of the first occurrence of cardiovascular disease in patients with newly diagnosed Type 2 diabetes. Among patients with Type 2 diabetes, insulin resistance is not a risk factor for cardiovascular disease.