

In normoglycaemic siblings of type 2 diabetic patients obesity accounts for decreased insulin sensitivity but not for hypertension.

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In the Diabetes in Families Study, a population-based collection of sibships of 347 type 2 diabetic patients, we have shown that non-diabetic siblings, compared with non-diabetic controls randomly selected from the general population, were more hyperglycaemic, less insulin sensitive and had greater central obesity, hypertension and dyslipidaemia. To determine whether metabolic syndrome variables segregate independently from hyperglycaemia, 98 normoglycaemic siblings (NGS) were compared with 62 normoglycaemic controls (NGC), each selected for fasting plasma glucose (FPG) ≤ 5.0 mmol.l⁻¹. In groups matching for sex (33% vs 34% male, NGS vs. NGC, respectively, NS) and age (58 vs 58 yrs, NS), FPG was slightly lower in NGS (4.8 vs. 4.9 mmol.l⁻¹, p=0.04). Adjusting for sex, age and FPG, NGS had greater BMI (25.3 vs 23.7 kg.m⁻², p=0.01), waist circumference (90 vs 85 cm, p=0.006), systolic BP (133 vs 123 mm Hg, p=0.003), plasma triglycerides (1.2 vs 1.0 mmol.l⁻¹, p=0.002), lower HOMA insulin sensitivity (84 vs 96 %S, p=0.02) and compensatory increase in beta-cell function (117 vs 106 % β , p=0.02). Adjusting for BMI and waist circumference accounted for differences in insulin sensitivity and beta-cell function, but the difference in systolic blood pressure persisted (131 vs 123 mm Hg, p=0.04). In conclusion, in normoglycaemic siblings of type 2 diabetic patients, insulin resistance was accounted for by obesity and waist circumference, but systolic hypertension was not, suggesting independent segregation of some metabolic syndrome variables.