Abstract
Aims

To report contemporary regression rates from impaired glucose regulation to normal glucose tolerance, identify modifiable factors associated with early regression, and establish whether it affects subsequent diabetes risk in a population-based cohort.

Methods

Participants with impaired glucose regulation (impaired fasting glucose and/or impaired glucose tolerance on a 75-g oral glucose tolerance test) at baseline in the UK-based ADDITION-Leicester study had annual Type 2 diabetes re-screens for 5 years or until diabetes diagnosis. Logistic regression models investigated modifiable risk factors for regression to normal glucose tolerance at 1 year ($n = 817$). Cox regression models estimated subsequent diabetes risk ($n = 630$).

Results

At 1 year, 54% of participants had regressed to normal glucose tolerance, and 6% had progressed to diabetes. Regression to normal glucose tolerance was associated with weight loss of 0.1–3% [adjusted odds ratio 1.81 (95% CI 1.08, 3.03) compared with maintaining or gaining weight] and a waist circumference reduction of > 3 cm [adjusted odds ratio 1.78 (95% CI 1.03, 3.06) compared with maintaining or increasing waist circumference]. Those with normal glucose tolerance at 1 year subsequently had lower diabetes risk than those who remained with impaired glucose regulation [adjusted hazard ratio 0.19 (95% CI 0.10, 0.37)].

Conclusions

Early regression to normal glucose tolerance was associated with reduced diabetes incidence, and might be induced by small reductions in weight or waist circumference. If confirmed in experimental research, this could be a clear and achievable target for individuals diagnosed with impaired glucose regulation.

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