A lifestyle intervention or metformin prevented or delayed the onset of metabolic syndrome in persons at risk


Clinical impact ratings GP/FP/Primary care ★★★★★ IM/Ambulatory care ★★★★★ Endocrine ★★★★★

In persons with impaired glucose tolerance, does an intensive lifestyle intervention (ILS) or treatment with metformin plus standard lifestyle recommendations prevent onset or promote resolution of metabolic syndrome?

**MAIN RESULTS**

The cumulative incidence of metabolic syndrome was lower in the ILS and metformin groups than in the placebo group (table). Resolution of metabolic syndrome was greater in the ILS group than in the placebo group (38% vs 18%, p = 0.002); metformin and placebo groups did not differ for resolution (23% vs 18%, p>0.05).

**CONCLUSIONS**

In persons with impaired glucose tolerance, an intensive lifestyle intervention or treatment with metformin plus standard lifestyle recommendations was more effective than standard lifestyle recommendations alone for preventing or delaying onset of metabolic syndrome.

Abstract and commentary also appear in ACP Journal Club.

**METHODS**

Design: randomised placebo controlled trial (The Diabetes Prevention Program randomised trial).

Allocation: concealed.*

Blinding: blinded (clinicians, participants, data collectors, and outcome assessors for metformin and placebo).*

Follow-up period: mean 3.2 years.

Setting: 27 centres in the US.

Participants: 3234 participants ≥25 years of age (mean age 51y, 68% women) without diabetes who had a body mass index ≥24 kg/m² (≥22 kg/m² for Asian Americans) and a plasma glucose concentration 5.3–7.0 mmol/l (95–125 mg/dl) (<7.0 mmol/l [<125 mg/dl] for Native Americans) in the fasting state and 7.8–11.1 mmol/l (140–199 mg/dl) after a 75 g oral glucose load. 53% of participants had metabolic syndrome at baseline.

Intervention: ILS (n = 1079; 530 without metabolic syndrome), standard lifestyle recommendations plus glucose control with metformin (850 mg twice daily) (n = 1073; 503 without metabolic syndrome), or placebo (n = 1082; 490 without the metabolic syndrome). The ILS aimed at achieving and maintaining a weight reduction of ≥7% of initial body weight through a low calorie, low fat diet and moderate physical activity. Standard lifestyle recommendations emphasised the importance of reducing weight and increasing physical activity.

Outcomes: incidence and resolution of metabolic syndrome.

Patient follow-up: 100% (intention to treat analyses).

*See glossary.

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<tr>
<th>Intensive lifestyle intervention (ILS) or metformin plus standard lifestyle vs placebo plus standard lifestyle for prevention of metabolic syndrome*</th>
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<tbody>
<tr>
<td><strong>Outcome at mean 3.2 years</strong></td>
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<td>---------------------------------------------</td>
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<tr>
<td>Incidence of metabolic syndrome</td>
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<td>Meformin vs placebo</td>
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*RHR = relative hazard reduction. Other abbreviations defined in glossary. †NNTs provided by author.

For correspondence: Diabetes Prevention Program Coordinating Center, George Washington University, Rockville, MD, USA

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