Involving patients with type 2 diabetes, hypertension, and hyperlipidaemia in disease management improved outcomes


QUESTION: In patients with type 2 diabetes mellitus, hypertension, and hyperlipidaemia, does involvement in managing their disease improve outcomes?

Design
Randomised (unclear allocation concealment†), unblinded,* controlled trial with 4 years of follow up.

Setting
A hospital diabetes outpatient clinic in Israel.

Patients
141 patients who were 45–70 years age (mean age 57 y, 51% women) with type 2 diabetes, blood pressure >140 mm Hg systolic or >90 mm Hg diastolic, and hyperlipidaemia. Exclusion criteria included diabetes duration >10 years, body mass index (BMI) >35 kg/m², smoking, serum creatinine >176 µmol/L, albumin to creatinine ratio ≥200 mg/g, and history of vascular surgery. Follow up was 91%.

Main outcome measures
Main outcomes were change in the glomerular filtration rate (GFR) and change in the urinary albumin to creatinine ratio. Secondary outcomes were changes in systolic and diastolic blood pressure, LDL C, and HbA₁c concentrations.

Main results
Analysis was by intention to treat. At 4 years, the PP group had a higher mean estimated GFR (98 vs 91 ml/min per 1.73 m², p<0.05) and a lower mean urinary albumin to creatinine ratio (44 vs 69 mg/g, p<0.05) than the SC group. Fewer patients in the PP group developed nephropathy (defined as an albumin to creatinine ratio >300 mg/g), new incidences of retinopathy, and cardiovascular events (table). The PP group showed lower mean systolic blood pressure (142 vs 148 mm Hg, p<0.05), mean diastolic blood pressure (84 vs 88 mm Hg, p<0.05), mean LDL C (114 vs 124 mg/dl, p=0.01), and mean HbA₁c levels (8.2% vs 8.9%, p=0.04) than the SC group.

Conclusion
In patients with type 2 diabetes mellitus, hypertension, and hyperlipidaemia, participation in disease management improved outcomes.

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Abstract and commentary also published in ACP Journal Club

Patient participation (PP) vs standard consultation (SC) for type 2 diabetes, hypertension, and hyperlipidaemia at 4 years†

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>PP</th>
<th>SC</th>
<th>RRR (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephropathy</td>
<td>0%</td>
<td>6%</td>
<td>100% (8 to 100)</td>
<td>18 (7 to 251)</td>
</tr>
<tr>
<td>New retinopathy cases</td>
<td>8%</td>
<td>24%</td>
<td>65% (20 to 85)</td>
<td>6 (4 to 26)</td>
</tr>
<tr>
<td>Cardiovascular events</td>
<td>34%</td>
<td>51%</td>
<td>34% (3 to 56)</td>
<td>6 (3 to 80)</td>
</tr>
</tbody>
</table>

†Abbreviations defined in glossary; RRR, NNT, and CI calculated from data in article.

COMMENTARY
The study by Rachmani et al adds to the literature on the benefits of actively involving patients in self management. Study participants were selected from a diabetes outpatient clinic in an academic hospital. Although participants were referred from primary care, they were a high risk group with other cardiovascular risk factors. It is possible that the PP may not be similarly effective in primary care centres without academic input. Participants in the PP group were provided with individualised, detailed instructions. These participants showed clinically and statistically significant improvement in risk factor management, which led to lower blood pressure, HbA₁c, and cholesterol concentration. However, interestingly, target concentrations were still not achieved. This study was not designed to assess such health outcomes as cardiovascular and microvascular events. Other studies, such as the United Kingdom Prospective Diabetes Study and the Heart Protection Study, have shown that changes in risk factor control (eg, blood glucose, blood pressure, and cholesterol concentrations) result in improved health outcomes. A worldwide trend exists towards self management of chronic disease. The recent introduction of Medicare funding in the US for diabetes education is an acknowledgment that funding organisations recognise the value of educating patients and building their capacity for self management. This study will help those designing future education programmes for managing diabetes and other chronic diseases.

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