Lifestyle recommendations reduced blood pressure in patients with above optimal blood pressure


Q In patients with above optimal blood pressure (BP), what is the relative effectiveness of 2 behavioural interventions [established lifestyle recommendations (ELR) and ELR plus the Dietary Approaches to Stop Hypertension (DASH) diet] compared with advice only?

### METHODS

- **Design:** randomised controlled trial.
- **Allocation:** concealed.
- **Blinding:** blinded (data collectors).
- **Follow up period:** 6 months.
- **Setting:** 4 clinical centres in Maryland, Louisiana, North Carolina, and Oregon, USA.
- **Patients:** 810 generally healthy adults who were >25 years of age (mean age 50 y, 62% women), had above optimal BP (mean systolic BP 120–159 mm Hg and diastolic BP 80–95 mm Hg across 3 screening visits), were not taking antihypertensive medication, and had a body mass index of 18.5–45.0. Exclusion criteria: regular use of drugs affecting BP; target organ damage or diabetes; use of weight loss medication; previous cardiovascular event; congestive heart failure; angina; cancer diagnosis or treatment in the previous 2 years; consumption of >21 alcoholic drinks/week; and pregnancy, planned pregnancy, or lactation.
- **Interventions:** ELR (weight loss for overweight participants, reduced sodium intake, increased physical activity, and limited alcohol intake) (n = 268); ELR plus DASH diet (reduced fat and cholesterol, increased potassium, calcium, magnesium, protein, and fibre) (n = 269); or advice (a single 30 minute individual counselling session, typically delivered by a dietitian) (n = 273). Patients in the ELR and ELR plus DASH diet groups had 14 group meetings and 4 individual counselling sessions during the initial 6 months.
- **Outcomes:** change in systolic and diastolic BP from baseline to 6 months.
- **Patient follow up:** 87% completed all 3 follow up visits at 6 months.

### MAIN RESULTS

Analysis was by intention to treat. Patients in the ELR and ELR plus DASH groups had greater reductions in systolic and diastolic BP than patients in the advice group (table). The 2 behavioural intervention groups did not differ (table).

### CONCLUSION

Patients with above optimal blood pressure (BP) who received established lifestyle recommendations, with or without the Dietary Approaches to Stop Hypertension diet, had greater reductions in BP than those who received advice only.

A modified version of this abstract appears in *ACP Journal Club* and Evidence-Based Medicine.

### Commentary

The link between high BP and risk of cardiovascular disease is well known. Research has shown that single interventions such as weight loss, sodium reduced diets, the DASH diet, increased physical activity, and limited alcohol intake reduce BP. The PREMIER study provides new insight into the effect of 2 behavioural interventions for lifestyle management of BP compared with conventional advice.

Study strengths include the randomised controlled design, objective measures of adherence to the interventions, and the inclusion of women and African-American participants, which enhances the generalisability of the findings. Although most of the methods were detailed meticulously, it is unclear whether dietitians provided counselling to the intervention groups or to the advice group only.

Nurses in acute care and community settings often have opportunities to provide counselling about the prevention or reduction of high BP. Depending on the context of practice, advice counselling may be the only practical option that is possible. However, nurses might be able to implement behaviour programming approaches in some settings.

The PREMIER study shows the benefits of established multiple lifestyle changes for BP. However, the additional improvement in BP expected as a result of adding the DASH diet to established lifestyle recommendations did not occur. For some patients, making multiple changes can be overwhelming. Nurses can encourage these patients by emphasising that they can reduce their BP by making a single established lifestyle change.

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1 The seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. NIH publication number 03–5233. Bethesda, MD: National High Blood Pressure Education Program, May 2003.

### Established lifestyle recommendations (ELR) or ELR plus Dietary Approaches to Stop Hypertension (DASH) diet v advice only for above optimal blood pressure (BP)*

<table>
<thead>
<tr>
<th>Outcomes at 6 months</th>
<th>ELR v advice</th>
<th>ELR + DASH v advice</th>
<th>ELR + DASH v ELR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP (mm Hg)</td>
<td>−3.7 (−5.3 to −2.1)</td>
<td>−4.3 (−5.9 to −2.8)</td>
<td>−0.6 (−2.2 to 0.9)†</td>
</tr>
<tr>
<td>Diastolic BP (mm Hg)</td>
<td>−1.7 (−2.8 to −0.6)</td>
<td>−2.6 (−3.7 to −1.5)</td>
<td>−0.9 (−2.0 to 0.2)†</td>
</tr>
</tbody>
</table>

*Abbreviations defined in glossary.
†Not significant.