Treating isolated systolic hypertension prevented major cardiovascular events across strata of risk in older patients


Question
In older patients with isolated systolic hypertension (ISH), is blood pressure (BP)–lowering treatment more effective than placebo for preventing major cardiovascular disease (CVD) events in those at high risk than in those at low risk?

Design
Randomized (allocation concealed†), blinded (outcome assessors),* placebo-controlled trial with 4.5-year follow-up (subgroup analysis of the Systolic Hypertension in the Elderly Program [SHEP] trial).

Setting
[5 clinical centers in the United States]†.

Patients
4736 community-dwelling patients who were ≥60 years of age and had ISH (systolic BP 160 to 219 mm Hg and diastolic BP <90 mm Hg assessed and averaged over 2 visits), no atrial fibrillation, and no history of myocardial infarction (MI) or stroke in the past 6 months. Patients taking antihypertensive medications were eligible if their BPs met the entry criteria for ISH after medication withdrawal. 4189 patients (88%) (64% age ≥70 y, 58% women) who did not report previous CVD or stroke at baseline and who had complete CVD risk factor data were included in the analysis reported here.

Intervention
Patients were allocated to treatment [n = 2365]† or placebo [n = 2371]†. ISH treatment was a stepped-care approach: Step 1 consisted of chlorthalidone, 12.5 mg/d, and step 2, of addition of atenolol, 25 mg/d, or reserpine, 0.05 mg/d, if atenolol was not tolerated. Treatment in both groups was increased by doubling the dosage or adding a second-step drug until the BP goal (systolic BP decreased to <160 mm Hg or by ≥20 mm Hg) was reached, side effects precluded an additional step up, or the highest step was reached.

Main outcome measure
First-occurring major CVD event (stroke, MI, or congestive heart failure).

Main results
[Analysis was by intention to treat]†. Patients were stratified by sex-specific quartiles of global cardiovascular risk scores. The rate for any major CVD event across strata of risk was lower in the treatment group than in the placebo group (P < 0.001). Point estimates for each stratum of risk are shown in the Table. The beneficial trend for treatment across strata was also seen (P < 0.001) when MI, stroke, and heart failure were analyzed separately.

Conclusion
In older patients with isolated systolic hypertension, blood pressure–lowering treatment prevented major cardiovascular events across strata of risk.

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*See Glossary.
†Information provided by author.

Blood pressure–lowering treatment vs placebo in older patients with isolated systolic hypertension to prevent any major CVD event per 100 patient-y‡

<table>
<thead>
<tr>
<th>CVD risk group</th>
<th>Treatment</th>
<th>Placebo</th>
<th>RRR (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st quartile</td>
<td>1.9</td>
<td>2.5</td>
<td>25% (−14 to 51)</td>
<td>Not significant</td>
</tr>
<tr>
<td>2nd quartile</td>
<td>2.6</td>
<td>3.6</td>
<td>29% (1 to 49)</td>
<td>100 (58 to 2485)</td>
</tr>
<tr>
<td>3rd quartile</td>
<td>3.0</td>
<td>5.2</td>
<td>43% (24 to 57)</td>
<td>48 (35 to 86)</td>
</tr>
<tr>
<td>4th quartile</td>
<td>4.3</td>
<td>7.2</td>
<td>40% (19 to 56)</td>
<td>37 (26 to 77)</td>
</tr>
</tbody>
</table>

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