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

Setting
(5 clinical centres in the US)†.

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 previous 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/day, and step 2, of addition of atenolol, 25 mg/day, or reserpine, 0.05 mg/day, 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 analysed separately.

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

*See glossary.
†Information provided by author.

Blood pressure lowering treatment v placebo in older patients with isolated systolic hypertension to prevent any major CVD event per 100 patient years:

<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>

‡CVD = cardiovascular disease. Other abbreviations defined in glossary; RRR and CIs calculated from data in article, and event rates and CIs for NNT provided by author.

COMMENTARY
Using the Multiple Risk Factor Assessment Equation and data generated during the SHEP trial, Ferrucci et al showed that treatment of older patients who have ISH (with each decade of age > 60 y used as an increasing risk factor) prevented major CVD events. SHEP began in 1984 and used an active drug regimen of chlorthalidone plus atenolol or reserpine.

In 1999, the Swedish Trial in Old Patients with Hypertension-2 provided evidence that “newer” drugs (angiotensin-converting enzyme inhibitors and calcium antagonists) for hypertension in the elderly have equivalent BP lowering effects and equivalent outcomes but possibly more side effects1 than the more “conventional” drugs used in the SHEP trial. Recent dietary studies show that reduced sodium intake, reduced-fat diets,2 and reduced-sodium diets3 also lower BP in otherwise healthy elderly patients in the range of 8 weeks2 to 30 months3 and permit reduction in antihypertensive drug dosage.1 Compelling evidence now exists that dietary and drug treatment of hypertension, including ISH, in otherwise healthy elderly patients is beneficial.

Ferrucci et al’s retrospective evaluation of data generated during a clinical trial over a decade ago suggests that the higher the cardiovascular risk, the greater the benefit of antihypertensive treatment in older patients.

Jean Gray, MD
Queen Elizabeth II Health Sciences Centre
Halifax, Nova Scotia, Canada

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

Evid Based Med 2002 7: 109
doi: 10.1136/ebm.7.4.109

Updated information and services can be found at:
http://ebm.bmj.com/content/7/4/109

References
This article cites 4 articles, 2 of which you can access for free at:
http://ebm.bmj.com/content/7/4/109#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections
Articles on similar topics can be found in the following collections

- Hypertension (403)
- Arrhythmias (97)
- Diet (262)
- Drugs: cardiovascular system (754)
- Stroke (546)
- Heart failure (65)
- Chemotherapy (82)
- Clinical trials (epidemiology) (1594)
- Geriatric medicine (134)
- Immunology (including allergy) (571)
- Ischaemic heart disease (419)

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/