Systolic Blood Pressure Intervention Trial: Discussant

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Disclosures: Marc A. Pfeffer, M.D., Ph.D., consults to Abbott Vascular, Amgen, AstraZeneca, Bayer, Concert, Daiichi Sankyo, Fibrogen, Genzyme, Medicines Company, MedImmune, Medtronic, Merck, Novartis, Novo Nordisk, Relypsa, Roche, Salix, Sanderling, Servier, Takeda, Teva, and Vericel; and receives grant support from Amgen, Celladon, Novartis, and Sanofi-Aventis. Co-inventor: patent to BWH for the use of inhibitors of the renin-angiotensin system in selected survivors of MI with Novartis Pharmaceuticals, with licensing agreement irrevocably and unconditionally assigned to charity
Factors of Risk in the Development of Coronary Heart Disease—Six-Year Follow-up Experience
The Framingham Study

William B. Kannel, MD, Thomas R. Dawber, MD, FACP, Abraham Kagan, MD, FACP, Nicholas Revotskie, MD and Joseph Stokes, III, MD

Framingham, Massachusetts


6-year incidence of coronary heart disease

Serum Cholesterol (mg %)

6-year Incidence of CHD (%)
## Effects of Treatment on Morbidity in Hypertension

**VA Cooperative Study Group on Antihypertensive Agents**

143 men (DBP 115 to 129 mm Hg), mean follow-up ~18 months, 29 events

<table>
<thead>
<tr>
<th></th>
<th>Placebo group (n = 70)</th>
<th>HCTZ + Reserpine + Hydralazine HCl group (n = 73)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths (all CV)</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Class A events*</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Other treatment failures</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Class B events†</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total events</td>
<td><strong>27 (39%)</strong></td>
<td><strong>2 (3%)</strong></td>
</tr>
</tbody>
</table>

*Class A events: Heart failure, cerebrovascular accident, renal failure, gastrointestinal bleeding.
†Class B events: Cardiac arrhythmias, non-cardiovascular accidents.
Effects of Treatment on Morbidity in Hypertension

2nd VA Cooperative Study Group on Antihypertensive Agents

380 men (DBP 90 to 114 mm Hg), mean follow-up ~3.3 yrs, 78 events

<table>
<thead>
<tr>
<th></th>
<th>Placebo group (n = 194)</th>
<th>HCTZ + Reserpine + Hydralazine HCl group (n = 186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths (all CV)</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Class A events*</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Other treatment failures</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Class B events†</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>Total events</td>
<td>56 (28.9%)</td>
<td>22 (11.8%)</td>
</tr>
</tbody>
</table>
“When these results were published in 1970, there was very little reaction from the media or from physicians at first.”

Philanthropist Mary Lasker, armed with copies of the VA study, prevailed upon Elliot Richardson, Secretary of Health, Education, and Welfare, to establish a National High Blood Pressure Education Program, “to alert physicians and the general public to the silent killer.”

The campaign made hypertension a household word.

“The HDFP investigators agreed that the results of the VA trial made it inappropriate to use placebos in large numbers of hypertensives across the full range of severity to be encountered in this community-based trial. Therefore, no one was denied therapy.”
Five-Year Findings of the Hypertension Detection and Follow-up Program

I. Reduction in Mortality of Persons With High Blood Pressure, Including Mild Hypertension

Baseline BP 159/101 mmHg
Δ Diastolic BP
RC -7 SC -14 mmHg

Deaths / n
RC 349 / 5485
SC 419 / 5455

↓17%
p<0.01
Prevention of Stroke by Antihypertensive Drug Treatment in Older Persons With Isolated Systolic Hypertension

Final Results of the Systolic Hypertension in the Elderly Program (SHEP)

Baseline 170/77 mmHg
Active (n=2365): 142/68
Placebo (n=2371): 154/72

Other
MI RR 0.67 (0.47-0.96)
HF RR 0.46 (0.33-0.65)
Deaths RR 0.87 (0.73-1.05)
CV Death RR 0.80 (0.60-1.05)
Risk of CHD Death According to Systolic BP in MRFIT

Risk of CHD Death According to Systolic BP in MRFIT

Risk of CHD Death According to Systolic BP in MRFIT

ACCORD BP trial: SBP & Outcomes

Average after 1st year: 133.5 Standard vs. 119.3 Intensive, Delta = 14.2

<table>
<thead>
<tr>
<th></th>
<th>Intensive</th>
<th>Standard</th>
<th>HR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV death, MI, Stroke</td>
<td>208 (1.87)</td>
<td>237 (2.09)</td>
<td>0.88 (0.73-1.06)</td>
<td>0.20</td>
</tr>
<tr>
<td>Total Mortality</td>
<td>150 (1.28)</td>
<td>144 (1.19)</td>
<td>1.07 (0.85-1.35)</td>
<td>0.55</td>
</tr>
</tbody>
</table>

Cushman et al. ACCORD BP Trial. NEJM 2010.
Landmark NIH study shows intensive blood pressure management may save lives
Embargoed for Release: September 11, 2015,

Lower blood pressure target greatly reduces cardiovascular complications and deaths in older adults with high blood pressure.

More intensive management of high blood pressure, below a commonly recommended blood pressure target, significantly reduces rates of cardiovascular disease, and lowers risk of death…
1°: CVD, MI, ACS, Stroke, HF

**Standard**

**Intensive**

**Hazard Ratio = 0.75 (95% CI: 0.64 to 0.89)**

**All Cause Mortality**

**Standard**

**Intensive**

**Hazard Ratio = 0.73 (95% CI: 0.60 to 0.90)**
For Intensive Group participants, the protocol is designed to achieve a systolic blood pressure of <120 mm Hg, ....

“For most .., a two- or three-drug regimen was initiated at randomization. Drug doses are increased and/or additional antihypertensive medications are added at monthly visits until the target of <120 mm Hg is reached or the investigator decides no further antihypertensive medications should be added.”
“For Standard Group participants, the protocol is designed to achieve a systolic blood pressure of 135–139 mm Hg, …”

“**Medication may be reduced** if the systolic blood pressure is <130 mm Hg at a single visit or <135 mm Hg at two consecutive visits.”
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“Medication may be reduced if the systolic blood pressure is <130 mm Hg at a single visit or <135 mm Hg at two consecutive visits.”

HOW OFTEN ?
Thank you
Thank you
Thank you
Thank you
Thank you
Thank you
Message to physicians and patients - Lower elevated BP to improve prognosis

But don’t expect a thank you from your patients when you add “another pill” to reduce BP