Goals Of Hypertension Management in Clinical Practice

World Hypertension League (WHL) Meeting

Adel E. Berbari, MD, FAHA, FACP
Professor of Medicine and Physiology
Head, Division of Hypertension and Vascular Medicine
American University of Beirut- Medical Center

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Causes of Poor BP control Rates

Role of Physician /Health Care Provider
1. Lack of appreciation of definition of hypertension and importance of cardiovascular risk factors.
2. Excessive reliance on monotherapy
3. Therapeutic inertia
   - Reluctance to increase drug dose or to add additional antihypertensive agents.

Role of Patient
1. Non adherence /non compliance with prescribed medications
2. Lack of persistence
   - Continuation of use of medications only for a specified time period

Impact of antihypertensive regimen
1. Complexity of treatment
2. Drug associated side effects
3. Drug cost
Increasing increments of blood pressure are associated with increasing risk of cardiovascular mortality.

Impact of High Normal BP on Risk of CV Event Cumulative 10 yr Incidence of First Cardiovascular Event According to BP Category at baseline

(Framingham Heart Study)
In Framingham Heart Study

- Gradual shift from DBP to SBP as cardiovascular risk predictors
- In patients younger than 50 years, DBP major predictor
- In patients 50 – 59 years, SBP/DBP, equal predictor
- In patients 60 years and older, coronary heart disease:
  - Positive Correlation with SBP
  - Inverse Relation with DBP
Risk of Death in Control (Untreated) Patients with Systolic (SBP) at Baseline and Fixed Levels of Diastolic (DBP) in Elderly (70yrs) Patients with Isolated Systolic Hypertension

Adjusted hazard ratios for combined coronary heart disease and cerebrovascular disease (CHD+CVD) events,
SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure; PP: Pulse Pressure
Systolic hypertension recently recognized as more important than diastolic hypertension:
- Cardiovascular risk factor
- Therapeutic decision making in older subjects
- Poor hypertension control in 70% of treated patients due to inability of reaching goal SBP < 140 mmHg

**Impact of Serum Cholesterol Levels on Risk of Heart Attacks**

- LOW RISK
  - No Smoking
  - Normal Glucose Tolerance
  - No EKG-LVH

Data from Framingham study
Impact of Serum Cholesterol Levels on Risk of Heart Attacks

Data from Framingham study

HIGH RISK
- Smoking
- Glucose Intolerance
- EKG-LVH

Age 40 Years
SBP 180 mmHg

Age 60 Years
SBP 120 mmHg

Similar Cardiovascular Risk
Determinants of CV Events risk during 20 years of successful antihypertensive treatment in middle aged subjects (modified from Alderman)

Rates per 1000 persons/year

- Age >50
- PP>60
- Smoking
- Cholesterol > 6.34
- DM
- LVH
- Heart
- Stroke
- Attack

Strategies to improve compliance

Provider
Educational
Affective
Behavioural

Combinational approach to improve compliance

ACCOMPLISH: Exceptional Control Rates with Initial Combination Therapy

Achieved Control Rates

<table>
<thead>
<tr>
<th>Control rate (%)</th>
<th>Baseline Control Rates</th>
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<tbody>
<tr>
<td>37.6</td>
<td>33.4</td>
</tr>
<tr>
<td>21.0</td>
<td>20.0</td>
</tr>
<tr>
<td>44.4</td>
<td>43.2</td>
</tr>
<tr>
<td>38.6</td>
<td>35.7</td>
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Incidence of serious hypotensive episodes 1.8% in 12,600 patients

Jamerson ASH 2007

Multiple Antihypertensive Agents are Needed to Reach BP Goal

<table>
<thead>
<tr>
<th>Trial (SBP achieved)</th>
<th>Average no. of antihypertensive medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCOT-BPLA (136.9 mmHg)</td>
<td>3</td>
</tr>
<tr>
<td>ALLHAT (138 mmHg)</td>
<td>2</td>
</tr>
<tr>
<td>IDNT (138 mmHg)</td>
<td>3</td>
</tr>
<tr>
<td>RENAAL (141 mmHg)</td>
<td>3</td>
</tr>
<tr>
<td>UKPDS (144 mmHg)</td>
<td>3</td>
</tr>
<tr>
<td>ABCD (132 mmHg)</td>
<td>4</td>
</tr>
<tr>
<td>MDRD (132 mmHg)</td>
<td>4</td>
</tr>
<tr>
<td>HOT (138 mmHg)</td>
<td>3</td>
</tr>
<tr>
<td>AASK (128 mmHg)</td>
<td>2</td>
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</tbody>
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Advantages of Fixed Versus Free Combinations of Two Antihypertensive Drugs

<table>
<thead>
<tr>
<th></th>
<th>Fixed</th>
<th>Free</th>
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<tbody>
<tr>
<td>Simplicity of treatment</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>Compliance</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>Efficacy</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Tolerability</td>
<td>+*</td>
<td>–</td>
</tr>
<tr>
<td>Price</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>Flexibility</td>
<td>–</td>
<td>+</td>
</tr>
</tbody>
</table>

*Lower doses generally used in fixed-dose combinations
* = potential advantage

Increased Persistence with Fixed-dose Combinations Compared with Individual Component-based Therapy

- Fixed-dose combination (Valsartan/HCTZ) (n=8,150) 54%
- Free combination (Valsartan + HCTZ) (n=561) 19%

Persistence (defined as patients remaining on treatment for a duration of 12 months)

Jackson et al. Value Health Suppl 2006;9:A363
Blood Pressure Goals

Non diabetic
< 140/90
(or less if tolerated/achievable)

Diabetic
< 130/80

Chronic kidney disease
(UAE ≥ 1G/D)
Coronary artery disease
< 125/75

Early/ aggressive Antihypertensive treatment.

Delay
Prevent
Reverse
BP related
Target organ damage

Protection
Future
Morbidity
Mortality

Effects of early/aggressive antihypertensive treatment
Effect of prompt / better BP control within first 6 months of treatment on cardiovascular outcomes (SBP < 140mmHg)

(Value Clinical Trial)
BP Reduction
- All classes of antihypertensive agents

Cardiovascular Protection
- Calcium channel antagonists
- Angiotensin converting enzyme inhibitors
- Angiotensin receptor antagonists

Renoprotection
- Angiotensin converting enzyme inhibitors
- Angiotensin receptor antagonists

Antihypertensive Therapy
- Effective BP Reduction
- Prevention Regression
- Target Organ Damage
- Management Associated Clinical Conditions
- Control CV Risk Factors
- Prevention New Onset Diabetes