HYPERTENSION MANAGEMENT DURING ACUTE STROKE

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Cardio Egypt 2018

Consequences of poor BP control to goal

Cardiovascular risk

115/75 135/85 155/95 175/105
### Benefits of lowering BP

<table>
<thead>
<tr>
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<th>Average percent reduction</th>
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<tbody>
<tr>
<td>Stroke incidence</td>
<td>35-40%</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>20-25%</td>
</tr>
<tr>
<td>Heart failure</td>
<td>50%</td>
</tr>
</tbody>
</table>

Blood pressure reduction of 2 mmHg decreases the risk of cardiovascular events by 7–10%.

- Meta-analysis of 61 prospective observational studies.
- 1 million adults
- 12.7 million person-years

2 mm Hg ↓ decreases in mean s BP

7% reduction in risk of ischemic heart disease mortality
10% of stroke mortality
During Acute Stroke
What is the problem???

1-Hazards during lowering BP

2-Hazards of leaving high BP

3-Phenomenon of post stroke hypertension
Is it harmful to lower BP during acute stroke?

1- Decrease collateral flow to peri-infarction ischemic area (penumbra)

2- Decrease collateral flow to perihematomal ischemic tissue

Is it harmful to have high BP in acute stroke?

- The risk of cerebral edema
- The risk of Hgic transformation
- Risk of hematoma expansion in hgix stroke
Post stroke hypertension: Why?

70-80% of strokes are accompanied with high BP

- Physiological response to autoregulation failure
- Damage or compression of autonomic brain centres
- Non stroke factors: Stress, headache, urine retention

Autoregulation maintains cerebral blood flow relatively constant between 50 and 150 mm Hg mean arterial pressure.

Ruland S, and Aiyagari V Hypertension 2007;49:977-978
SO WHAT TO DO

???????

2018

IS THERE IS NEW □

?
AHA/ASA Guideline

2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

VIII. Treatment of Hypertension in Association With Stroke

Acute Stroke: Onset to 72 Hours

- Treat extreme BP elevation (systolic > 220 mmHg, diastolic > 120 mmHg) by 15-25% over the first 24 hour with gradual reduction after.
- If eligible for thrombolytic therapy • treat very high BP (>185/110 mmHg)

Avoid excessive lowering of BP which can exacerbate ischemia

- Up to 220/120 just observe except:
  - Aortic dissection
  - Acute pulmonary edema
  - AMI
  - Hypert.encephalopathy
Strongly consider blood pressure reduction in all patients after the acute phase of stroke or TIA.

Target BP < 140/90 mmHg
An ACEI / diuretic combination is preferred

BP lowering agents in acute stroke

Labetalol followed by Nicordipine are widely accepted and used whenever drug therapy is needed
Nitrates could be used occasionally especially with CAD but may increase ICP
IV Enalapril
Na nitroprusside is rarely used (BP >240)
Shift to oral within 24-48 hrs
ACEI is theoretically the best in normalizing auto-regulation
### 2018 guidelines

#### 3.2. Blood Pressure (Continued)

<table>
<thead>
<tr>
<th>COR</th>
<th>LOE</th>
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<tbody>
<tr>
<td>1</td>
<td>B-NR</td>
</tr>
</tbody>
</table>

2. Patients who have elevated BP and are otherwise eligible for treatment with IV alteplase should have their BP carefully lowered so that their systolic BP is <185 mm Hg and their diastolic BP is <110 mm Hg before IV fibrinolytic therapy is initiated.

#### 4.3. Blood Pressure

<table>
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<tr>
<th>COR</th>
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<td>1</td>
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</table>

1. In patients with AIS, early treatment of hypertension is indicated when required by comorbid conditions (e.g., concomitant acute coronary event, acute heart failure, aortic dissection, postthrombolysis stroke, or preeclampsia/eclampsia). Lowering BP initially by 15% is probably safe.

2. In patients with BP <220/120 mm Hg who did not receive IV alteplase or EVT and do not have a comorbid condition requiring acute antihypertensive treatment, initiating or reinitiating treatment of hypertension within the first 48 to 72 hours after an AIS is not effective to prevent death or dependency.
3. In patients with BP ≥220/120 mm Hg who did not receive IV alteplase or EVT and have no comorbid conditions requiring acute antihypertensive treatment, the benefit of initiating or reinitiating treatment of hypertension within the first 48 to 72 hours is uncertain. It might be reasonable to lower BP by 15% during the first 24 hours after onset of stroke.

4.3. Blood Pressure (Continued)

5. Starting or re-starting antihypertensive therapy during hospitalization in patients with BP >140/90 mm Hg who are neurologically stable is safe and is reasonable to improve long-term BP control unless contraindicated.

Acute intracranial hemorrhage

Figure 7. Management of Hypertension in Patients With Acute ICH

- Acute (<6 h from symptom onset) spontaneous ICH
- SBP 150-220 mm Hg
  - SBP lowering to <140 mm Hg (Class III: Harm)
- SBP >220 mm Hg
  - SBP lowering with continuous IV infusion and close BP monitoring (Class IIa)
Stroke is a catastrophic event.

The best treatment is to prevent.
### BP CATEGORIES

**Table 6. Categories of BP in Adults**

<table>
<thead>
<tr>
<th>BP Category</th>
<th>SBP</th>
<th>DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120 mm Hg and &lt;80 mm Hg</td>
<td></td>
</tr>
<tr>
<td>Elevated</td>
<td>120-129 mm Hg and &lt;80 mm Hg</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>130-139 mm Hg or 80-89 mm Hg</td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td>≥140 mm Hg or ≥90 mm Hg</td>
<td></td>
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</tbody>
</table>

### Prevalence

<table>
<thead>
<tr>
<th></th>
<th>SBP/DBP ≥130/80 mm Hg or Self-Reported Antihypertensive Medication†</th>
<th>SBP/DBP ≥140/90 mm Hg or Self-Reported Antihypertensive Medication‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, crude</td>
<td>46%</td>
<td>32%</td>
</tr>
<tr>
<td>Men (n=4917)</td>
<td>48%</td>
<td>31%</td>
</tr>
<tr>
<td>Women (n=4905)</td>
<td>43%</td>
<td>32%</td>
</tr>
<tr>
<td>Overall, age-sex adjusted</td>
<td>48%</td>
<td>31%</td>
</tr>
</tbody>
</table>

The prevalence estimates have been rounded to the nearest full percentage.

*130/80 and 140/90 mm Hg in 9623 participants (≥20 years of age) in NHANES 2011–2014.
Our life deserve

THANK YOU