Hypertension medication treatment protocol

For adults without CHF, CAD, pregnancy, CKD stage 3 or albuminuria ≥ 300 mg/d or ≥ 300 mg/g albumin-to-creatinine ratio*

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Check labs at clinician’s discretion.

Not on antihypertensive medication
- Prescribe dihydropyridine CCB plus ACEI or ARB in a single-pill combination (SPC).1a,2,3
- If concerned about hypotension, frailty in the very old, increased risk of medication intolerance or other factors, consider a low dose SPC or monotherapy with a CCB.1b

If CCB not tolerated (e.g., edema), consider replacing with thiazide-like diuretic.1b
If diabetes with albuminuria and monotherapy desired, use an ACEI or ARB.1b

Already on antihypertensive medication
- Prescribe one additional medication from a different class (ACEI or ARB, CCB, or thiazide or thiazide-like diuretic) preferably as a single-pill combination (SPC), if available.1a

Intensify medication if benefits outweigh risks
1. If on SPC, increase SPC dose or add thiazide-like or thiazide diuretic.1a
2. If on CCB monotherapy, add ACEI or ARB4 preferably as SPC2
3. If on ACEI or ARB monotherapy, add CCB preferably as SPC3
4. If on thiazide-like or thiazide monotherapy, add ACEI or ARB1a
5. If on three medication classes, consider referral to specialist and/or adding spironolactone1d

Generic medication summary

<table>
<thead>
<tr>
<th>Antihypertensive medication</th>
<th>Sample generic options</th>
<th>Dose once daily (initial)4</th>
<th>Dose once daily (intensified)4</th>
<th>Estimated Cost (30-day supply)5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCB and ACEI (SPC) (if ACEI not tolerated due to cough, go to next row)</td>
<td>amlodipine/benazepril</td>
<td>(a) 2.5/10 mg</td>
<td>(a) 5/10 mg or 5/20 mg</td>
<td>$15–20</td>
</tr>
<tr>
<td>CCB and ARB (SPC) (if cost an issue, use CCB monotherapy (amlodipine) and go to next row)</td>
<td>(a) amlodipine/olmesartan</td>
<td>(b) 5/20 mg</td>
<td>(b) 5/20 mg or 10/20 mg</td>
<td>(a) $29–40</td>
</tr>
<tr>
<td></td>
<td>(b) amlodipine/telmisartan</td>
<td>(b) 5/40 mg or 5/80 mg</td>
<td>(c) 10/20 mg or 10/40 mg</td>
<td>(b) $50–60</td>
</tr>
<tr>
<td>Add thiazide-like or thiazide diuretic</td>
<td>(a) indapamide (preferred)</td>
<td>(a) 1.25 mg</td>
<td>(a) 2.5 mg</td>
<td>(a) $4</td>
</tr>
<tr>
<td></td>
<td>(b) chlorthalidone (preferred)</td>
<td>(b) 12.5 mg = ½ 25 mg tab</td>
<td>(b) 25 mg</td>
<td>(b) $8–16</td>
</tr>
<tr>
<td></td>
<td>(c) hydrochlorothiazide</td>
<td>(c) 12.5 mg</td>
<td>(c) 25 mg</td>
<td>(c) $4</td>
</tr>
<tr>
<td>Add spironolactone (optional)</td>
<td>spironolactone</td>
<td>12.5 mg = ½ 25 mg tab</td>
<td>25 mg</td>
<td>$3–$12</td>
</tr>
</tbody>
</table>

*This protocol should not be used in patients with CHF, CAD, pregnancy, CKD stage 3 or albuminuria ≥ 300 mg/g albumin-to-creatinine ratio or the equivalent in first morning void. Simultaneous use of an ACEI, ARB, and/or renin inhibitor is not recommended.1d
Disclaimer

Adherence to this protocol may not achieve goal blood pressure in every situation. Furthermore, this information should not be interpreted as setting a standard of care, or be deemed inclusive of all proper methods of care, nor exclusive of other methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding the appropriateness of any specific therapy must be made by the physician and the patient in light of all the clinical factors, including labs, presented by the individual patient. This protocol reflects the best available evidence at the time that it was prepared. The results of future studies may require revisions to the recommendations in this protocol to reflect new evidence, and it is the clinician’s responsibility to be aware of such changes.

References


   1a. See page e168, evidence statement, and e189, evidence statement plus supporting text.
   1b. See page e210, “In the very old….,” and page e169, “However, caution is advised in initiating antihypertensive pharmacotherapy with 2 drugs in older patients because hypotension or orthostatic hypotension may develop in some patients ….”
   1c. See page e162, Figure 4, including text within figure.
   1d. See page e194, “Treatment of resistant hypertension ….”
   1e. See page e164, for evidence statement.


5. Cost is approximation only for patients without insurance coverage based on available U.S. retail pharmacy information and GoodRx as of March 28, 2019.