Michigan Quality Improvement Consortium

Michigan Quality Improvement Consortium Guideline

August, 2007

Medical Management of Adults with Hypertension

The following guideline recommends diagnostic evaluation, education and pharmacologic treatment that support effective patient self-management.

Eligible Population	Key Components	Recommendation and Level of Evidence
Adult patients ≥ 18 years of age. Not pregnant. **Classification based on mean of 2 or more seated BP readings on each of 2 or more office visits.** Normal BP <120/<80 Prehypertension 120-139/80-89 Hypertension: **Stage 1** 140-159/90-99 **Stage 2** ≥160/≥100	Initial assessment	• The objectives of the initial evaluation are to assess lifestyle, cardiovascular risk factors, concomitant disorders, reveal identifiable causes of hypertension and check for target organ damage and cardiovascular disease. • Physical examination: 2 or more BP measurements using regularly calibrated equipment with the appropriate sized cuff and separated by at least 2 minutes, verification in contralateral arm, funduscopic exam, neck exam (bruits), heart and lung exam, abdominal exam for bruits or aortic aneurysm, extremity pulses **[A]** • Laboratory tests prior to initiating therapy: Potassium, creatinine, glucose, hematocrit, calcium, urinalysis, lipid panel, EKG **[D]**
	Patient education and nonpharmacologic interventions	• Lifestyle modification: weight reduction (BMI goal < 25), reduction of dietary sodium to less than 2.4 gm/day, DASH diet **[A]** (i.e. diet high in fruits and vegetables, reduced saturated and total fat), aerobic physical activity ≥ 30 minutes most days of the week, tobacco avoidance, increased dietary potassium and calcium, moderation of alcohol consumption[1] **[A]** • Use of self BP monitoring. Home measurement device should be checked regularly for accuracy. Mean self measured BP > 135/85 generally considered to be hypertensive
	Goals of Therapy	• **Adjust therapy to achieve target BP ≤ 140/90 (< 130/80 for patients with diabetes or kidney disease)**
	Pharmacologic interventions	• Prehypertension (120-139/80-89): none unless compelling indication (e.g., diabetes, renal failure, CHF, post-MI, stroke arteriosclerotic cardiovascular disease) • Hypertension, Stage 1 (140-159/90-99): thiazide-type diuretics alone or in combination with angiotensin converting enzyme inhibitor (ACEI), beta blocker or calcium channel blocker (extended/sustained release or long acting)[2]. Angiotensin receptor blocker (ARB) if ACEI not tolerated • Hypertension, Stage 2 (≥160/≥100): two-drug combination (thiazide-type diuretic plus ACEI, beta blocker or calcium channel blocker (extended/sustained release or long acting); use ARB if ACEI not tolerated • ACEI (ARB if ACEI not tolerated) are recommended in patients with diabetes or heart failure **[A]** • Beta-blockers are recommended in patients with ischemic heart disease or heart failure • 3 or more drugs may be necessary for some patients to achieve goal BP
	Monitoring and adjustment of therapy **[D]**	• Prehypertension without medication: annual BP check with lifestyle modification counseling • Hypertension, Stage 1: initiate therapy and recheck at monthly intervals until goal is reached • Hypertension, Stage 2: initiate therapy and recheck weekly or more often if indicated. Symptomatic Stage 2 may require hospital monitoring and treatment • Modify antihypertensive therapy as needed if adverse effects become intolerable • Once BP controlled with medication: recheck every 3-6 months • Serum potassium and creatinine should be monitored at least 1-2 times/year for patients on medication

[1]Moderate alcohol consumption is defined as up to two drinks per day for men, one drink per day for women and older people.

[2]Avoid use of short-acting nonsustained release calcium channel blockers **[A]**

Levels of Evidence for the most significant recommendations: A = randomized controlled trials; B = controlled trials, no randomization; C = observational studies; D = opinion of expert panel

This guideline represents core management steps. It is based on several sources, including: Hypertension Diagnosis and Treatment, Institute for Clinical Systems Improvement, 2006 **(www.icsi.org)**. Individual patient considerations and advances in medical science may supersede or modify these recommendations.