

## JNC 7: Current Recommendations for Hypertensive Therapy

When JNC I was published in 1977, this report listed 28 drugs as treatment options for hypertension (diuretics were recommended as first line therapy) and treatment was recommended when the diastolic blood pressure was higher than 105 mmHg. JNC VI, published in 1997, listed 84 drugs as therapeutic agents. The JNC VI guidelines recommended treatment even if blood pressure (BP) was in the high-normal range (130-139/85-89 mmHg). Use of multidrug therapy was also emphasized as contrasted to the earlier “sequential monotherapy” approach to treatment. A compulsive therapeutic plan to achieve recommended, and more stringent, BP control was emphasized. The JNC 7 guidelines were published in May 2003 and incorporated the findings of several new studies published since JNC VI including ALLHAT, ANBP-2, STOP-2, LIFE, NORDIL, and CONVINCENCE. Findings from these studies led to a new four-tiered blood pressure classification that recognized stages of hypertension as opposed to graduated states of “severity” and included the new designation of prehypertension.

**Figure 1.** JNC 7 Blood Pressure (BP) Classification

BP Classification	SBP mmHg		DBP mmHg
Normal	<120	and	<80
Prehypertension	120-139	or	80-89
Stage 1 hypertension	140-159	or	90-99
Stage 2 hypertension	≥160	or	≥100

JNC 7 = The Seventh Report of the Joint National Committee on Prevention, Evaluation, and Treatment of High Blood Pressure; BP = blood pressure; SBP = systolic blood pressure; DBP = diastolic blood pressure.

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These changes meant that 22% of Americans were now included as prehypertensive who were previously considered normotensive. This distinction is felt to be clinically important since small decreases in blood pressure can have profound reductions in the cardiovascular (CV) event rate.

In the Hypertension Optimal Treatment (HOT) trial, the difference between an achieved diastolic blood pressure of 81 and 85 mmHg was associated with a 50% reduction in cardiovascular morbidity – particularly in the diabetic cohort.

The large ALLHAT study demonstrated that there was no difference in fatal or nonfatal coronary heart disease events, in diabetics or non-diabetics, when diuretics are chosen as first line therapy. However, when compared with either calcium channel blockers or angiotensin converting enzyme inhibitor (ACEI) therapy, “compelling indications” may warrant the use of other classes of antihypertensive agents.

**Figure 2**

**Compelling indications in selecting antihypertensive agents.**

**Heart failure**

- ACE inhibitors
- Beta blocking agents
- Angiotensin-receptor blockers (symptomatic ventricular dysfunction)
- Aldosterone antagonists (symptomatic ventricular dysfunction)
- Loop diuretics (symptomatic ventricular dysfunction)

**MI**

- Beta blocking agents
- ACE inhibitors (with systolic dysfunction)
- Aldosterone antagonists (symptomatic ventricular dysfunction)

**Type 2 diabetes mellitus with proteinuria**

- ACE inhibitors
- Angiotensin-receptor blockers

**Stroke**

- ACE inhibitors plus thiazide diuretics

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Recent studies have suggested that new onset diabetes is lower in patients treated with an ACE inhibitor or an angiotensin II receptor blocker (ARB) as compared with other agents. Patients who are more susceptible to develop new onset diabetes are those who are older, more obese, and have higher blood pressures (metabolic syndrome).

The elderly hypertensive patient was also emphasized in the JNC 7 report. Hypertension is a major risk factor for cardiovascular events in elderly patients and systolic blood pressure is the primary target for blood pressure management in elderly (> than 60 years) patients. Central sympatholytic agents and reserpine should generally be avoided in the elderly because these agents may adversely affect cognition. These newer studies and JNC 7 guidelines suggest these key conclusions:

- 1) A new BP classification that incorporates the designation of prehypertension has been defined that recognizes the linear relationship between the entire BP range and coronary artery disease and stroke in middle aged and elderly persons. For older individuals, systolic BP seems to be a more important risk factor for control than diastolic BP.
2. Thiazide diuretics should be used as initial therapy in patients with mild uncomplicated hypertension.
3. Certain high risk conditions <sup>Fig 2</sup> may suggest the use of other antihypertensive agents and most patients will require two or more drugs to reach goal BP (less than 140/90 mmHg or less than 130/80 mmHg for patients with diabetes or renal disease).<sup>Fig 3</sup> If BP is greater than 20/10 mmHg above goal, begin with two drugs and consider a combination pill (ACEI/diuretic; calcium channel blocker/diuretic).
4. While some evidence suggests that ACEI or ARB agents may reduce the incidence of new onset diabetes, particularly in those with the metabolic syndrome, “For hypertensive patients as a whole, reduction of BP, (especially systolic BP) is more important than choice of antihypertensive drug (s) for reducing CV risk”.<sup>2</sup>
5. There is clear evidence from a variety of clinical trials that changes in lifestyle including maintenance of normal body weight, increased physical activity, a diet rich in vegetables, fruit, nuts, fish, and low fat dairy products, can lower blood pressure in hypertensive patients and prehypertensive patient. Lifestyle modification, though difficult to achieve should continue to be emphasized by all health care professionals.

## REFERENCES

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