



# Maximizing antihypertensive management in the elderly

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### ■ ABSTRACT

The management of hypertension in the elderly is safer and more effective if we consider diurnal fluctuations in blood pressure, preexisting postural and postprandial hypotension, and coronary risk when setting therapeutic goals and selecting or adjusting antihypertensive medications. Lifestyle modifications should coincide with drug therapy in the management of elderly hypertensive patients. The author suggests a checklist of specific considerations when treating hypertension in the elderly.

**M**ANAGING HYPERTENSION in the elderly involves more than giving drugs to lower the blood pressure to 140/90 or 130/85 mm Hg or lower. Determining the diurnal range of blood pressures in ordinary life circumstances and evaluating for comorbidities and the risk for coronary events help us to more safely and effectively set therapeutic goals, to avoid overtreatment, to manage postural hypotension, and to lower the risk for coronary or ischemic events. This article reviews basic considerations for safer management of hypertension in elderly patients.

### ■ HOME BLOOD PRESSURE MONITORING

One way to manage hypertension more effectively in the elderly is to assess blood pressure fluctuations that occur during ordinary daily routines. A patient with a blood pressure of 180/110 mm Hg at one time of the day may

have a reading of 118/62 mm Hg at another time. A knowledge of the patient's diurnal fluctuations facilitates selecting or adjusting antihypertensive therapy.

Unfortunately, office blood pressure measurements cannot accomplish this. They provide us with inadequate data, and the "white coat" effect is quite common. Twenty-four-hour home blood pressure monitoring, although it has its problems and is not yet practical in all situations, can provide us with an excellent profile of daily blood pressure fluctuations. Improvements in the transfer of readings via telecommunications will further enhance the clinical utility of this information.

### ■ POSTURAL HYPOTENSION

An increase in the pulse pressure—the result of higher systolic pressure and somewhat lower diastolic pressure—and a loss of baroreceptor reflex mechanisms contribute to postural hypotension in the elderly, and an elderly person who stands up can experience significant changes in systolic blood pressure: as much as 50 mm Hg is not uncommon. Similar fluctuations can occur after meals: in nursing homes, for example, the worst time of day for postural falls in pressure is after breakfast, because of splanchnic pooling, which further reduces effective blood volume, along with the lack of sympathetic nerve activation in the early morning.

Antihypertensive drugs can dangerously exacerbate postural and postprandial hypotension, contributing to falls and broken bones. Therefore, at the same time that we treat hypertension, we need to manage postural and postprandial hypotension.

To prevent or minimize postural hypotension, the following advice may be helpful:

**How to solve the special problems of the elderly hypertensive patient**



- Sleep with the head of the bed elevated
- Get out of bed slowly
- Do isometric exercises; I give my patients an old tennis ball and tell them to squeeze it five times before they get out of bed
- Eat small meals
- Use compression or support hose, which prevent peripheral pooling and reduce the likelihood that the blood pressure will drop significantly when standing; some patients can be taken out of wheelchairs and allowed to ambulate by wearing support hose
- If you become dizzy or lightheaded when walking, crossing your legs while standing can raise the blood pressure 20 or 30 mm Hg
- Drink two glasses of water before standing up first thing in the morning; a recent study<sup>1</sup> showed that this can raise systolic blood pressure impressively in the short term.

#### ■ LIFESTYLE MODIFICATIONS

Elderly patients with hypertension have the same need for lifestyle modifications as younger patients and should be advised to stop smoking, exercise regularly, lose weight, and cut down on dietary sodium.

In the Trial of Nonpharmacologic Interventions in the Elderly (TONE),<sup>2</sup> nearly 1,000 elderly hypertensive patients stopped taking their hypertension medications and were assigned to lifestyle modification or no treatment.

Only 16% of patients assigned to no treatment were able to maintain normal blood pressure without medication for the next 30 months. On the other hand, patients assigned to either a reduced-sodium (40-mmol/day) diet or a weight-loss regimen of diet plus exercise were twice as likely to stay normotensive, and those on a combination of reduced-sodium diet and weight loss were three times as likely to stay normotensive without medication. The patients in the weight-loss group lost an average of 5 kg, which, though not a lot, is not insignificant. These data emphasize that elderly hypertensive patients respond well even to relatively small changes in sodium intake and weight loss.

#### ■ PHARMACOLOGIC TREATMENT: BALANCING THE GOOD AND THE BAD

Although nonpharmacologic treatments are helpful in the management of hypertension in the elderly, they are often not enough. We now have enough data to know that drug therapy for hypertension reduces morbidity and mortality and that there should be no age limit for treating patients. One study<sup>3</sup> of elderly patients taking a long-acting calcium antagonist even showed a 50% reduction in the development of dementia. The only elderly patients we should not treat for hypertension are those with uncontrolled cancer or other conditions that will soon be lethal.

On the other hand, antihypertensive drugs have drawbacks. Lowering the blood pressure too much may increase the incidence of stroke.<sup>4</sup> And the number of antihypertensive agents currently available means that no single agent works very well all the time. Furthermore, polypharmacy is common in the elderly, and antihypertensive drugs can interact with drugs elderly patients take concomitantly. For example, many elderly patients with osteoarthritis take nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or cyclooxygenase-2 inhibitors, both of which can significantly inhibit the effectiveness of antihypertensive therapies. Giving acetaminophen instead of NSAIDs avoids this problem.

#### ■ OVERVIEW OF ANTIHYPERTENSIVE MANAGEMENT IN THE ELDERLY

'Start low, go slow' is still the guiding principle of dosage titration of antihypertensive drugs in the elderly. This allows autoregulation and other mechanisms to come into play to prevent profound hypotensive effects that can occur with large doses of medication.

**At least three drugs may be needed** if the goal is to bring the systolic pressure to below 140 mm Hg. The first agent should almost always be a diuretic; a long-acting dihydropyridine calcium channel blocker should be the second. The choice of the next drug depends on the patient's comorbidities, and the drug should help the hypertension and the comorbidity. For example, an elderly man with an

**Elderly hypertensive patients respond well to even small degrees of sodium restriction and weight loss**



enlarged prostate should receive an alpha blocker, which helps both the prostatic hyperplasia and the hypertension. For a patient with angina or coronary disease, I prefer a beta blocker or a calcium channel antagonist. For the elderly diabetic patient or patient with renal damage, I prefer an angiotensin-converting enzyme inhibitor.

**Prescribe long-acting, once-daily formulations.** Elderly patients prefer not to take multiple doses of medications. Furthermore, long-acting forms protect against early-morning cardiovascular events by mitigating the abrupt circadian increase in blood pressure that occurs early in the morning in most people.

#### REFERENCES

1. Jordan J, Shannon JR, Black BK, et al. The pressor response to water drinking in humans. *Circulation* 2000; 101:504-509.
2. Whelton PK, Appel LJ, Espeland MA, et al. Sodium reduction and weight loss in the treatment of hypertension in older persons. *JAMA* 1998; 279:839-846.
3. Staessen JA, Gasowski J, Wang JG, et al. Risks of untreated and treated isolated systolic hypertension in the elderly: Meta-analysis of outcome trials. *Lancet* 2000; 355:865-872.
4. Somes GW, Pahor M, Shorr RI, et al. The role of diastolic blood pressure when treating isolated systolic hypertension. *Arch Intern Med* 1999; 159:2004-2009.

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