NEW FACTS ABOUT... Hypertension in older adults

Approximately 35 percent of community dwelling people over 65 years of age are hypertensive.^{1,2} Similar prevalence rates are found among nursing home residents.³ Hypertensive older adults experience cardiovascular events at a rate 2–3 times higher than that of younger individuals with the same systolic and diastolic blood pressure.⁴

Given these facts, interventions to prevent, diagnose, and treat hypertension could have a significant impact on morbidity and mortality among the elderly. The following are some important findings in the recent literature related to the process of care for hypertension:

Nonpharmacologic therapies—diet (e.g., sodium restriction and weight loss) and exercise (e.g., aerobic exercise)—are effective in lowering blood pressure, and may eliminate the need for pharmacologic therapy among older adults with mild hypertension.⁵⁻¹²

As is true with younger age groups, pharmacologic agents have been shown to be effective in lowering blood pressure among older adults.¹³⁻¹⁵

Numerous studies have demonstrated that a variety of pharmacologic antihypertensive agents reduce cardiovascular morbidity and mortality among older adults. Two separate meta-analyses of fourteen randomized controlled trials report that among older hypertensives treated with pharma-cologic agents there is a 34–36 percent reduction in stroke, a 19–25 percent reduction in coronary heart disease, and an 11–12 percent reduction in overall mortality.^{13–15}

The effects of antihypertensive agents on cardiovascular and cerebrovascular events may be attenuated in the very old.¹⁶⁻¹⁸ However, one trial has demonstrated reductions in stroke incidence among individuals taking antihypertensive medication, including those over age 80.¹⁵ This issue is being further addressed in the ongoing Hypertension in the Very Elderly trial, a randomized clinical trial enrolling hypertensive patients over the age of 80.¹⁹

Compliance with antihypertension medication is poor. However, once-daily dosing improves patient compliance and may assist in blood pressure control.^{20–22}

These findings show the beneficial effect of pharmacologic and nonpharmacologic therapy in treating hypertension. However, despite this compelling data, the general population receives hypertension treatment suboptimally. Only 53 percent of the hypertensive population is treated with antihypertensive medications, and control of hypertension is achieved in just over 40 percent of these patients.²³

This information is an interim result of a funded three-year collaboration between Pfizer and RAND to measure and improve the quality of care provided for older Americans.





1. National Center for Health Statistics. *Health, United States, 1995.* Hyattsville, MD: Public Health Service, 1996, p. 181.

2. Bild DE, Fitzpatrick A, Fried LP, Wong ND, Haan MN, Lyles M, Bovill E, Polak JF, Schulz R. Age-related trends in cardiovascular morbidity and physical functioning in the elderly: The Cardiovascular Health Study. *J Am Geriatr Soc.* 1993;41:1047–1056.

3. Gambassi G, Lapane K, Sgadari A, Landi F, Carbonin P, Hume A, Lipsitz L, Mor V, Bernabei R. Prevalence, clinical correlates, and treatment of hypertension in elderly nursing home residents. *Arch Intern Med.* 1998;158:2377–2385.

4. Vokonas PS, Kannel WB, Cupples LA. Epidemiology and risk of hypertension in the elderly: The Framingham Study. *J Hypertens.* 1988; 6(suppl 1): S3–S9.

5. Midgley JP, Matthew AG, Greenwood CMT, Logan AG. Effect of reduced dietary sodium on blood pressure: A meta-analysis of randomized controlled trials. *JAMA*. 1996;275:1590–1597.

6. Elliott P, Stamler J, Nichols R, Dyer AR, Stamler R, Kesteloot H, Marmot M. Intersalt revisited: Further analyses of 24 hour sodium excretion and blood pressure within and across populations. *BMJ.* 1996;312:1249–1253.

7. Whelton PK, Appel LJ, Espeland MA, Applegate WB, Ettinger WH, Kostis JB, Kumanyika S, Lacy CR, Johnson KC, Folmar S, Cutler JA. Sodium reduction and weight loss in the treatment of hypertension in older persons: A randomized controlled trial of nonpharmacologic interventions in the elderly (TONE). *JAMA*. 1998;279:839–846.

8. The Trials of Hypertension Prevention Collaborative Research Group. Effects of weight loss and sodium reduction intervention on blood pressure and hypertension incidence in overweight people with high-normal blood pressure. The Trials of Hypertension Prevention, Phase II. *Arch Intern Med.* 1997;157:657–667.

9. Wassertheil-Smoller S, Blaufox MD, Oberman AS, Langford HG, Davis BR, Wylie-Rosett J. The Trial of Antihypertensive Interventions and Management (TAIM) Study: Adequate weight loss, alone and combined with drug therapy in the treatment of mild hypertension. *Arch Intern Med.* 1992;152:131–136.

10. Kelley G, McClellan P. Antihypertensive effects of aerobic exercise: A brief meta-analytic review of randomized controlled trials. *Am J Hypertens.* 1994; 7:115–119.

11. Physical exercise in the management of hypertension: A consensus statement by the World Hypertension League. *J Hypertens.* 1991;9: 283–287.

12. Kokkinos PF, Narayan P, Colleran JA, Pittaras A, Notargiacomo A, Reda D, Papademetriou V. Effects of regular exercise on blood pressure and left ventricular hypertrophy in African-American men with severe hypertension. *N Engl J Med.* 1995;333:1462–1467.

13. Insua JT, Sacks HS, Lau T-S, Lau J, Reitman D, Pagao D, Chalmers TC. Drug treatment of hypertension in the elderly: A meta-analysis. *Ann Intern Med.* 1994;121:355–362.

14. MacMahon S, Rodgers, A. The effects of blood pressure reduction in older patients: An overview of five randomized controlled trials in elderly hypertensives. *Clin and Exper Hypertension*. 1993;15:967–978.

15. SHEP Cooperative Research Group. Prevention of stroke by antihypertensive drug treatment in older persons with isolated systolic hypertension: Final results of the Systolic Hypertension in the Elderly Program (SHEP). *JAMA*. 1991;265:3255–3264.

16. Amery A, Birkenhäger W, Brixko P, Bulpitt C, Clement D, de Leeuw P, de Plaen JF, Deruyttere M, De Schaepdryver A, Dollery C, Fagard R, Feltkamp H, Forette F, Forte J, Hamdy R, Henry JF, Koistinen A, Leonetti G, Lund-Johansen P, Morris J, Nissinen A, O'Brien E, O'Malley K, Terzoli L, Tuomilehto J, Webster J, Williams B. Influence of antihypertensive drug treatment on morbidity and mortality in patients over the age of 60 years. EWPHE results: Sub-group analysis based on entry stratification. *J Hypertens.* 1986; 4(suppl 6):S642–S647.

17. Staessen JA, Fagard R, Thijs L, Celis H, Birkenhäger WH, Bulpitt CJ, de Leeuw PW, Fletcher AE, Babarskiene M-R, Forette F, Kocemba J, Laks T, Leonetti G, Nachev C, Petrie JC, Tuomilehto J, Vanhanen H, Webster J, Yodfat Y, Zanchetti A. Subgroup and per-protocol analysis of the Randomized European Trial on Isolated Systolic Hypertension in the Elderly. *Arch Intern Med.* 1998;158:1681–1691.

18. Dahlof B, Lindholm LH, Hansson L, Schersten B, Ekbom T, Wester P-O. Morbidity and mortality in the Swedish Trial in Old Patients with Hypertension (STOP-Hypertension). *Lancet.* 1991;338:1281–1285.

19. Bulpitt CJ, Fletcher AE, Amery A, Coope J, Evans JG, Lightowlers S, O'Malley K, Palmer A, Potter J, Sever P, Staessen J, Swift C. The Hypertension in the Very Elderly Trial (HYVET): Rationale, methodology and comparison with previous trials. *Drugs & Aging.* 1994;5:171-183.

20. Eisen SA, Miller DK, Woodward RS, Spitznagel E, Przybeck TR.. The effect of prescribed daily dose frequency on patient medication compliance. *Arch Intern Med.* 1990;150:1881–1884.

21. Monane M, Bohn RL, Gurwitz JH, Glynn RJ, Levin R, Avorn J. Compliance with antihypertensive therapy among elderly Medicaid enrollees: The roles of age, gender, and race. *Am J Public Health.* 1996;85: 1805–1808.

22. The sixth report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Arch Intern Med.* 1997;157:2413–2446.

23. Burt VL, Whelton P, Roccella EJ, Brown C, Cutler JA, Higgins M, Horan MJ, Labarthe D. Prevalence of hypertension in the US adult population: Results from the Third National Health and Nutrition Examination Survey, 1988–1991. *Hypertension*. 1995;25:305–313.

