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White-coat hypertension is hypertension

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White-Coat Hypertension Is Hypertension

J. David Spence

The article in this issue from Puato et al¹ in Padova, Italy, is important because it was prospective, with 5 years of follow-up, and the hypertensive patients were never treated. They showed that carotid intima-media thickness was greater at baseline in white-coat hypertensive subjects (WCHs), increased more during follow-up than in normotensive subjects, and was not different in WCHs with sustained hypertension.

There is a widespread tendency, which I characterize as wishful thinking,² to believe that it is a kindness to withhold therapy in patients with white-coat hypertension. Withholding therapy avoids labeling, the cost of therapy, and the adverse effects of antihypertensive drugs, so is thought to be desirable if therapy does not reduce cardiovascular events. This is justified by the important prospective findings of Verdecchia et al,³ who showed that when ambulatory blood pressure was consistently <130/80 mm Hg, there was no excess of cardiovascular events. It is seldom remembered that this definition was very strict and that even ambulatory blood pressure between 130/80 mm Hg and 131/86 mm Hg (for women) or 136/87 mm Hg (for men) was as strongly associated with cardiovascular events as were higher pressures.

Several cross-sectional studies have shown that white-coat hypertension is a form of hypertension that is intermediate between normotension and sustained hypertension.^{4,5} Glen et al⁴ found that left ventricular function and arterial compliance, elasticity, and stiffness were similarly adversely affected compared with normotensive subjects, in WCHs, and in patients with sustained hypertension. Cerasola et al⁵ showed that left ventricular mass, carotid intima-media thickness, retinopathy, and microalbuminuria in WCHs were all intermediate between normotensive subjects and sustained hypertensive subjects.

It is likely that white-coat hypertension identifies patients who react to stress with a rise in blood pressure. Higher blood pressure during mental arithmetic is associated with white coat hypertension.^{6,7} Thus, when blood pressure in the office

is high, it is very likely that blood pressure is also high during daily stressors, such as being cut off in traffic, an argument with the boss or a coworker, or a disagreement with a friend or spouse. Reactivity to mental stress, induced either by mental arithmetic or by the Stroop task, a frustrating cognitive task based on color/word interference, is also associated with progression of carotid total plaque area,⁸ left ventricular mass,⁹ and carotid intima-media thickness.¹⁰

Virtually all of the evidence that hypertension is harmful and the evidence that treatment reduces cardiovascular risk is based on office pressures. It is no kindness to withhold therapy that markedly reduces the risk of stroke, cardiovascular disease, and dementia. It must be recognized that the hypothesis that it is safe to withhold therapy in white-coat hypertension remains untested. What is required is a randomized, controlled trial in which WCHs are randomly assigned to have their blood pressure treated on the basis of office pressures versus ambulatory blood pressure or home pressures. Until that is done, the prudent course is to treat high blood pressures measured in the office.

Disclosures

None.

References

1. Puato M, Palatini P, Zanardo M, Dorigatti F, Tirrito C, Rattazzi M, Pauletto P. Increase in carotid intima-media thickness in grade I hypertensive subjects: white-coat versus sustained hypertension. *Hypertension*. 2008;51:1300–1305.
2. Spence JD. Withholding treatment in white-coat hypertension: wishful thinking. *CMAJ*. 1999;161:275–276.
3. Verdecchia P, Schillaci G, Borgioni C, Ciucci A, Porcellati C. Prognostic significance of the white coat effect. *Hypertension*. 1997;29:1218–1224.
4. Glen SK, Elliott HL, Curzio JL, Lees KR, Reid JL. White coat hypertension as a cause of cardiovascular dysfunction. *Lancet*. 1996;348:654–657.
5. Cerasola G, Cottone S, Nardi E, D'Ignoto G, Volpe V, Mule G, Carollo C. White-coat hypertension and cardiovascular risk. *J Cardiovasc Risk*. 1995;2:545–549.
6. Pannarale G, Isea JE, Coats AJ, Conway J, Sleight P. Cardiac and blood pressure responses to mental stress in reactive hypertensives. *Clin Exp Hypertens A*. 1991;13:1–12.
7. Nakao M, Shimosawa T, Nomura S, Kuboki T, Fujita T, Murata K. Mental arithmetic is a useful diagnostic evaluation in white coat hypertension. *Am J Hypertens*. 1998;11:41–45.
8. Barnett PA, Spence JD, Manuck SB, Jennings JR. Psychological stress and the progression of carotid artery disease. *J Hypertens*. 1997;15:49–55.
9. Spence JD, Bass M, Robinson HC, Cheung H, Melendez LJ. Prospective study of ambulatory monitoring and echocardiography in borderline hypertension. *Clin Invest Med*. 1991;14:241–250.
10. Jennings JR, Kamarck TW, Everson-Rose SA, Kaplan GA, Manuck SB, Salonen JT. Exaggerated blood pressure responses during mental stress are prospectively related to enhanced carotid atherosclerosis in middle-aged Finnish men. *Circulation*. 2004;110:2198–2203.

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