



Hypertension: Don't worry about the J curve— treat the patient

In treating cardiovascular risk factors, we keep making our targets more aggressive. Epidemiologic data have established a link between high blood pressure (and high blood sugar) and a variety of bad outcomes. Since we now have many drugs to lower blood pressure and blood glucose, it would seem that aggressive treatment goals should be both achievable and beneficial.

But some have long suspected too-aggressive treatment would have an adverse effect—the so called “J curve” seen when drug effect is plotted against adverse outcome. The validity of this concept at the extreme is obvious: excessive hypotension or hypoglycemia is not clinically tolerated. So where is the cutoff between benefit and complications, where treatment becomes too aggressive and causes complications that outweigh the benefits?

In this issue of the *Journal* (page 123), Dr. Edward J. Filippone and colleagues discuss the treatment of hypertension with proposed aggressive but seemingly reasonable blood pressure targets. Surprisingly, interventional trials have not jibed with observational data that suggest a beneficial continuous relationship between blood-pressure-lowering within the physiologic range and cardiac outcomes. Potential explanations for this are many. Organs differ in their response to blood-pressure-lowering. The brain, despite considerable autoregulatory circulatory control, benefits from lowered blood pressure with reduced stroke frequency. The heart, uniquely dependent on diastolic flow for perfusion, can be compromised with aggressive lowering of the diastolic pressure, ie, to below 85 mm Hg, although lowering the systolic pressure may be beneficial. Specific drugs may have beneficial or detrimental effects, particularly in combinations needed to control blood pressure in patients with stiff arteries and multiple comorbidities.

In the clinic, attention to the individual's physiology and clinical response to therapy needs to be paramount in our mind as we determine treatment targets—possibly a source of dissonance, as we are held accountable to external agencies for our practice performance in a depersonalized manner.

Proposed aggressive blood pressure targets remain contentious, but a far greater problem is that we are still not successfully treating hypertension to even a conservative target. In a recent analysis of the National Health and Nutrition Examination Survey database from 2003 to 2006, only about 44% of treated hypertensive patients were appropriately controlled.¹ As a community of physicians, we have a way to go before we hit the J point.

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1. Lloyd-Jones D, Adams RJ, Brown TM, et al; American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2010 update: a report from the American Heart Association. *Circulation* 2010; 121:e46–e215; erratum in *Circulation* 2010; 121:e260.

doi:10.3949/ccjm.78b.11002