Importance of Achieving Lower Blood Pressure in Hypertensive Patients With Diabetes

Charles S. Brooks, James R. Sowers

The INternational VErapamil SR-trandolapril STudy (INVEST), a prospective open trial with blinded end point design, included 6400 participants with diabetes, coronary artery disease, and hypertension among a total of 22,576 participants.1 The trial was designed to compare a nondihydropyridine calcium antagonist verapamil SR-based and atenolol-based antihypertensive regimen. The protocol provided for an option of adding an angiotensin-converting enzyme (ACE) inhibitor, trandolapril or hydrochlorothiazide, to achieve blood pressure targets from the sixth report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VI), less than 130/85 mm Hg in the cohort with diabetes. Diabetes was defined as anyone with a history of diabetes mellitus or use of an oral hypoglycemic agent or insulin at baseline. Mean follow-up was 2.7 years in the diabetic group. The diabetic group had almost twice the risk for cardiovascular disease (CVD) events compared with those without diabetes in INVEST.

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The primary outcome (composite of first occurrence of all-cause death, nonfatal myocardial infarction, or nonfatal stroke) was not different between treatment strategies. Thus, all-cause death, nonfatal myocardial infarction, or nonfatal stroke was associated with reduced risks of the primary outcome in both treatment strategies. Indeed, there was a decrease in CVD event risks down to a blood pressure of 110/60 mm Hg. Further, because most of the blood pressure reduction was accomplished in the first 6 months, this early blood pressure control appears to be an important determinant of final outcomes in trials of several years duration, such as the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT), and the Valsartan Antihypertensive Long-term Use Evaluation (VALUE) trials5,10 as well as INVEST. Collectively, the results of INVEST and other recent trials underscore the importance of achieving the lower blood pressure goal of 130/80 mm Hg in patients with diabetes and hypertension that is currently recommended by a number of guideline committees in North America and Europe.

References


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Blood pressure control was laudatory in diabetic patients in INVEST, as almost half of the participants achieved the JNC VI goal of less than 130/85 mm Hg. This control rate is considerably better than in other trials1-5 and in practice-based settings (26.7 and 22%, respectively).6,7 On treatment analysis in the current study indicated a trend for reduced CVD with the addition of trandolapril to verapamil or hydrochlorothiazide to atenolol. Further, use of combination therapy likely accounted, in part, for the relatively high percentage of diabetic patients achieving goal blood pressure.

Because both treatment strategies achieved very similar blood pressure goals and CVD risk reduction, these data provide additional evidence for achieving a lower blood pressure goal regardless of the specific agents used in combination.7-9 Consistent with this notion, achievement of systolic BP of <140 mm Hg and diastolic blood pressures of <90 mm Hg was associated with reduced risks of the primary outcome in both treatment strategies. Indeed, there was a decrease in CVD event risks down to a blood pressure of 110/60 mm Hg. Further, because most of the blood pressure reduction was accomplished in the first 6 months, this early blood pressure control appears to be an important determinant of final outcomes in trials of several years duration, such as the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT), and the Valsartan Antihypertensive Long-term Use Evaluation (VALUE) trials5,10 as well as INVEST. Collectively, the results of INVEST and other recent trials underscore the importance of achieving the lower blood pressure goal of 130/80 mm Hg in patients with diabetes and hypertension that is currently recommended by a number of guideline committees in North America and Europe.


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