Editorial

James V. Felicetta, MD

Editor-in-Chief

When Diabetes, Hypertension, and Dyslipidemia Compete, Who Wins?

In order to illustrate a point about the relative effects of blood glucose, blood pressure (BP), and lipid management, I'd like to pose a hypothetical question—one that none of us should ever have to answer in the real world. Imagine that you're treating an older, overweight man with type 2 diabetes, hypertension, and dyslipidemia. He has no clinically significant microvascular disease and no history of diabetic ketoacidosis or a hyperosmolar state. He tolerates his hyperglycemia fairly well; he has no significant polyuria, polydipsia, fatigue, or lethargy. For this patient, therefore, the primary goal of tight blood glucose control is protection from such macrovascular complications as coronary artery disease, cerebrovascular disease, and peripheral arterial disease.

Now, suppose that unusual (and highly unrealistic) circumstances dictate that you can only treat one of the patient's three problems: the diabetes, the hypertension, or the dyslipidemia. Which would you designate as your top priority?

You may be surprised to learn that your best choice would be to treat the patient's hypertension. The next best choice would be dyslipidemia, with diabetes in last place.

This ranking may sound strange, coming from an endocrinologist, but it isn't the least bit heretical. The prospective evidence to date, including the results of the landmark United Kingdom Prospective Diabetes Study Group's hypertension in diabetes study,[1] strongly supports the ability of hypertension treatment to lower macrovascular event risk. Similarly, several well designed, randomized, controlled trials—such as the Heart Protection Study[2] and the Collaborative Atorvastatin Diabetes Study[3]—have shown that this risk is reduced by statin treatment to lower lipid levels.

In contrast, no randomized, controlled study has yet demonstrated that tight glycemic control reduces macrovascular events. In fact, the pilot study for the ongoing VA Cooperative Study on Glycemic Control and Complications in Type II Diabetes showed more events in patients using tight glycemic control than in those using conventional control, although the difference was nonsignificant.[4]

A great deal of epidemiologic data do suggest that diabetic patients with poor glycemic control have many more macrovascular events than do those with well controlled blood glucose levels. Epidemiologic evidence cannot prove the point definitively, however, as it cannot rule out inherent differences between patients who do and do not attain their glycemic goals.

The results of two ambitious, national trials, expected over the next few years, should provide more authoritative evidence on this issue. In the aforementioned VA Cooperative Study, roughly 2,000 patients with type 2 diabetes—all of whom are receiving aggressive BP and lipid management—have been assigned randomly to conventional or tight glycemic control. And, in the NIH-sponsored Action to Control Cardiovascular Risk in Diabetes trial, over 10,000 patients with type 2 diabetes and concurrent hypertension or dyslipidemia are being assigned randomly to tight or conventional glycemic control. At the same time, they are taking part in either a dyslipidemia or a hypertension substudy that compares conventional and intensive management.

These trials may show, once and for all, whether tight glycemic control, particularly when accompanied by aggressive BP and lipid management, reduces macrovascular events. Meanwhile, since we don't have to choose just one condition to treat, let's aggressively help patients achieve their BP and lipid goals—even as we work to get blood glucose levels under control. ●

Author disclosures

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REFERENCES

1. UK Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. *BMJ*. 1998;317(7160):703–713.
2. Collins R, Armitage J, Parish S, Sleigh P, Peto R; and Heart Protection Study Collaborative Group. MRC/BHF Heart Protection Study of cholesterol-lowering with simvastatin in 5963 people with diabetes: A randomized placebo-controlled trial. *Lancet* 2003;361(9374):2005–2016.
3. Colhoun HM, Betteridge DJ, Durrington PN, et al; for CARDS Investigators. Primary prevention of cardiovascular disease with atorvastatin in type 2 diabetes in the Collaborative Atorvastatin Diabetes Study (CARDS): Multicentre randomized placebo-controlled trial. *Lancet*. 2004;364(9435):685–696.
4. Abraira C, Colwell J, Nuttall F, et al. Cardiovascular events and correlates in the VA Feasibility Trial (VACSDM). Veterans Affairs Cooperative Study on Glycemic Control and Complications in Type II Diabetes. *Arch Intern Med.* 1997;157(2):181–188.