Strategies and Goals for Hypertension Control in Patients With Diabetes Mellitus

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According to a recent analysis of National Health and Nutrition Examination Survey data, the prevalence of hypertension among US adults with diabetes mellitus is 77%. When the 2 coexist, the rate of cardiovascular-renal complications is increased ≥2-fold overall and many-fold for progressive nephropathy. Although the large majority report being treated for hypertension, blood pressure is controlled to the currently recommended level <130/80 mm Hg in only 30% of hypertensive, diabetic patients. Whatever the reasons for the gap between recommended treatment guidelines and low hypertension control rates, it is apparent that more effective interventions are warranted.

In this issue of Hypertension, Turchin et al evaluate one strategy for improving the rate of hypertension control in diabetic patients. Based on a retrospective chart review of >5000 adult patients with diabetes mellitus and hypertension followed by primary care physicians, they evaluated the hypothesis that shorter time intervals between physician-patient encounters are associated with improved blood pressure control. In accordance with recommended guidelines at the beginning of their study, the treatment goal was considered to be blood pressure <130/85 mm Hg. Inclusion criteria included adult hypertensive patients with diabetes who were followed by primary care physicians for ≥2 years. All of the patients had ≥1 encounter with a primary care physician during the 2-year study period where a recorded blood pressure was ≥130/85 mm Hg. Mean age of the patients was 64.6 years, 58% were women, 58.0% were white, and 18.0% were black. Blood pressure was >130/85 mm Hg 60% of the time, and on average there were 3.8 physician-patient encounters during periods of continuously elevated blood pressure. In a univariate analysis, blood pressure was controlled more rapidly with shorter time periods between encounters (eg, 1.8 months to normalize when the interval between encounters was <1.0 month and 29.4 months to normalize when the interval between encounters was >6.0 months). In a multivariate analysis, the relation between encounter interval and blood pressure normalization remained significant. An increase of 1 month in the average interval between encounters was associated with a hazard ratio of 0.764 for blood pressure normalization (P<0.0001). Increases in the patient’s age and initial blood pressure were also associated with a longer time to blood pressure normalization. Additionally, rates of decrease of both systolic and diastolic blood pressures increased progressively with shorter intervals between encounters, particularly with encounter intervals approximately <10 weeks. Predictors of shorter encounter intervals included intensification of antihypertensive therapy, higher blood pressures, and older age. The interval to the next encounter increased if the physician seeing the patient was not his/her usual primary care provider.

The authors are to be commended for attempting to evaluate the relationship between physician encounters and the rate of blood pressure control based on a retrospective chart review. As they point out, increased encounter frequency provides more opportunities for medication intensification and may be associated with improved treatment adherence. Not unexpectedly, the study also raises several additional questions. By design, patients whose hypertension was consistently controlled were excluded from analysis. However, it would be of interest to know whether sustained blood pressure control is also related to encounter frequency. Must the encounter invariably include a physician? Is it the encounter itself or feedback to the patient that is more relevant? Would home blood pressure monitoring and/or home telemetry achieve similar results? For example, compared with usual care, home-based, nurse-managed blood pressure telemetry has been shown to improve hypertension control in blacks, another patient group with high rates of uncontrolled hypertension.

Another related issue not addressed by Turchin et al but relevant to the treatment of hypertensive, diabetic patients is evaluation of the treatment goal for blood pressure reduction. Several studies have evaluated the benefits and risks of intensive blood pressure lowering in hypertensive, diabetic patients. The original United Kingdom Prospective Diabetes Study demonstrated that hypertensive patients with type 2 diabetes mellitus randomized to “tight” blood pressure control (blood pressure <150/85 mm Hg) had a lower incidence of macrovascular and microvascular end points than patients randomized to less tight control (blood pressure <180/105 mm Hg) over a median follow-up of 8.4 years. However, during a 10-year postinterventional follow-up, there was no attempt to maintain previously assigned blood pressure therapies. Differences in blood pressure between the 2 groups during the trial disappeared within 2 years after termination of the trial, and the benefits of previously improved “tight” blood pressure control were not sustained. A subgroup analysis of the Hypertension Optimal Treatment study of hypertensive, diabetic patients randomized to lower diastolic blood pressure targets (≤80 and ≤85 mm Hg) had significantly fewer cardiovascular events than patients randomized...
to a target diastolic blood pressure ≤90 mm Hg. Notably, even in the lowest diastolic blood pressure group, mean systolic blood pressure was 143.7 mm Hg. Another randomized trial, the Action to Control Cardiovascular Risk in Diabetes Study, also compared the effects of 2 levels of blood pressure control (targeting systolic blood pressure <120 versus <140 mm Hg) on cardiovascular end points in ~5000 participants with type 2 diabetes mellitus. Over a mean follow-up of 4.7 years, there was no statistically significant difference between the 2 groups in the incidence of the composite end point—nonfatal myocardial infarction, nonfatal stroke, or death from cardiovascular causes. The incidence of nonfatal stroke, a prespecified secondary end point, was lower in the intensively treated group (P=0.01). In a study of >25,000 patients with atherosclerotic disease or diabetes mellitus with organ damage, randomized to ramipril, telmisartan, or both, stroke incidence was reduced with lowering systolic blood pressure <130 mm Hg; myocardial infarction incidence was unaffected, and cardiovascular mortality was unchanged or increased. A J-curve, with a nadir of ~130 mm Hg was observed in the relationship between treated systolic blood pressure and all of the outcomes except stroke.

Intuitively, it is perhaps not surprising that hypertension is more rapidly controlled in patients who have more frequent encounters with their usual primary care providers. However, it is likely that a variety of culturally sensitive strategies will be required to improve hypertension control rates in diabetic patients. Prospective clinical trials will help to resolve some of the unanswered questions raised by the study by Turchin et al. Additionally, future trials should further evaluate more efficient, less expensive strategies for hypertension control than frequent one-on-one patient-physician encounters. Finally, a word of caution: at the risk of encouraging therapeutic inertia, care should be taken to avoid overtreatment and its adverse consequences—primum non nocere!

Disclosures
None.

References
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