Diabetes, Hypertension, and Cardiovascular Disease: An Update

To the Editor:

Sowers et al are to be commended for writing a thorough review on the diabetic hypertensive patient. In doing so, they came to the conclusion that, “Results of the SHEP [2] and the UKPDS [3] trials suggest that diuretics and β-blockers as well as ACE inhibitors are also useful therapeutic agents in diabetic hypertensive patients who often require ≥2 drugs to control blood pressure adequately. [4]” Although we agree with this statement, it should be pointed out that β-blockers seem to be far less efficacious than the other drug classes in this subpopulation. The UKPDS (UK Prospective Diabetes Study) has demonstrated that coronary heart disease is much more prevalent than cerebrovascular disease in the diabetic hypertensive patient. In fact, in the UKPDS, morbidity and mortality events from coronary heart disease were between 4 to 6 times more common than events from cerebrovascular disease. Thus, any drug class used to treat the hypertensive diabetic population should exert some primary cardioprotective efficacy, i.e., lower the risk of coronary heart disease. Unfortunately, antihypertensive therapy in the UKPDS had no effect on coronary artery disease (Figure). As Sowers et al pointed out, half of these patients were treated with an ACE inhibitor (captopril) and half with a β-blocker (atenolol), but there was no significant difference between the 2 treatment strategies. Similar to our previous findings in hypertension in the elderly, β-blockers failed to exert a primary cardioprotective effect in the diabetic patient in the UKPDS. Further, β-blockers have well-documented detrimental effects on metabolic findings, increase the risk of diabetes in nondiabetic hypertensive patients, and cause weight gain, all of which increase the risk of coronary heart disease and other cardiovascular morbidity and mortality. Because coronary artery disease is the most prevalent cardiac complication in these patients, β-blockers should be used with restraint only in patients with specific indications.

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Antihypertensive Rx and Coronary Heart Disease in Diabetic Hypertensive Patients (UKPDS)

<table>
<thead>
<tr>
<th>Clinical Point</th>
<th>Patients with Clinical End Points</th>
<th>Absolute Risk</th>
<th>Relative Risk for Tight Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=100)</td>
<td>(Events per 1000 Patient Yrs)</td>
<td>(95% CI)</td>
</tr>
<tr>
<td></td>
<td>Tight Control</td>
<td>Less Tight Control</td>
<td>Tight Control</td>
</tr>
<tr>
<td>Fatality</td>
<td>59</td>
<td>42</td>
<td>9.8</td>
</tr>
<tr>
<td>Non-Fatal MI</td>
<td>51</td>
<td>29</td>
<td>8.9</td>
</tr>
<tr>
<td>Angina</td>
<td>45</td>
<td>22</td>
<td>7.9</td>
</tr>
<tr>
<td>Sudden death</td>
<td>11</td>
<td>4</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Response

I have reviewed the comments made by Drs Messerli and Grossman regarding our review on diabetes and hypertension published recently in Hypertension. Although our review emphasized rigorous treatment of hypertension and the importance of ACE inhibitor therapy as an important component, it did not focus on β-blockers. Indeed, we emphasized that calcium antagonists, low-dose diuretics, and β-blockers were all appropriate medications for the diabetic population, who often need 2 to 3 classes of hypertensive medication. Given the high prevalence of ischemic heart disease in the diabetic patient, β-blockers were an important component of the armamentarium. Although they can cause a small weight gain, so does insulin, sulfonylurea, and thiazolidinedione therapy for hyperglycemia, but that does not preclude their use. Also, prior concern regarding adverse effects of β-blockers on hypoglycemia and masking of symptoms increasingly appears to be important for only some type 1 diabetics. Accordingly, we do not believe the negative remarks regarding use of β-blockers in diabetics is warranted or sends the correct message to practicing physicians.

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References

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