Racial Differences in the Effectiveness of Nonpharmacologic Treatment of Hypertension

To the Editor:

Hypertension is responsible for much morbidity and mortality, in particular cerebrovascular and cardiovascular disease. Intensive treatment of hypertension reduces the incidence of stroke and cardiovascular events and decreases cardiovascular mortality compared with less intensive blood pressure reduction. Antihypertensive drugs are efficacious in reducing blood pressure, but their use is associated with a variety of side effects, and adherence to medication is often poor. A nonpharmacologic approach is generally recommended in the initial treatment of mild hypertension or as an adjunct to pharmacologic therapy in patients with more severe or resistant hypertension. Several trials have shown favorable changes in blood pressure with diet modification, weight reduction, sodium restriction, and physical exercise. We wished to investigate possible racial differences in effectiveness of an intensive program of nonpharmacologic measures for blood pressure reduction.

We recruited male and female patients with essential hypertension from our Hypertension Clinic and by referral from local general practices; patients already on antihypertensive drug treatment were not excluded, but in all cases, such treatment was not altered for the duration of their participation in the study. All patients had stable systolic blood pressure readings of ≥140 mm Hg and/or diastolic blood pressure readings of ≥85 mm Hg, as measured by mercury sphygmomanometry by a single trained observer on ≥3 separate occasions with the patient in the sitting position. Eighteen patients (10 white, 8 African/Caribbean) were entered into the program (active group, age 53.0 ± 14.4 years). This comprised a 2-hour-long session once a week for 10 weeks, consisting of sports activities (tailored to baseline level of activity and fitness), dietary advice (with guidance on reducing salt, fat, and alcohol intake and on increasing fruit and vegetable consumption), teaching sessions on hypertension, and advice regarding physical activity and stress management. Eighteen patients with similar baseline characteristics received usual care over the same time period (control group, age 49.0 ± 12.5 years). Blood pressure was measured in the sitting position after 10 minutes of rest, at the beginning and end of the 10-week period. Statistical analysis was by paired Student’s t test for within-group differences and by unpaired Student’s t test for between-group differences, with Bonferroni’s correction applied for multiple comparisons; P < 0.05 (2-tailed) was taken as indicating statistical significance. All data are expressed as mean ± SD.

There was no significant difference at baseline in either systolic or diastolic blood pressure between the white and the African/Caribbean subjects, in either the active group (white, 137.4 ± 7.0/87.1 ± 5.1 mm Hg; African/Caribbean, 147.4 ± 16.7/93.9 ± 5.4 mm Hg) or the control group (white, 146.9 ± 18.2/85.0 ± 7.1 mm Hg; African/Caribbean, 147.5 ± 17.3/91.6 ± 5.2 mm Hg). By week 10, both systolic and diastolic pressures had fallen significantly in the white active group, to 126.7 ± 12.0 mm Hg (P < 0.005) and 81.1 ± 7.9 mm Hg (P < 0.005), respectively, whereas there was no change in either systolic or diastolic pressure in the African/Caribbean active group (147.5 ± 20.1/90.5 ± 7.9 mm Hg at week 10) or the control group. In both active groups, all patients attended ≥7 of the sessions, suggesting good motivation and adherence to the program.

Our study demonstrates that an intensive program of nonpharmacologic treatment, although effective at lowering blood pressure in white hypertensives, at least in the short term, is less effective in African/Caribbean hypertensives. Long-term efficacy in each group remains to be determined. Our results have important implications for the implementation of strategies to reduce the burden of hypertension and its consequences in different racial groups and indicate the need for further studies to delineate the mechanism of the differences observed.

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