Preliminary Results from a Controlled Evaluation of Thermal Biofeedback as a Treatment for Essential Hypertension

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In a controlled trial, thermal biofeedback (n = 20) and abbreviated progressive relaxation (n = 22) were compared in the treatment of mild to moderate hypertensive patients whose blood pressures (BP) were initially controlled on two medications. For the clinical end point of maintaining control of BP on a single drug after treatment, biofeedback was superior to relaxation training (at 3 months, 47% success for biofeedback versus 23% for relaxation). This same result tended to be true for patient-measured home BPs. BPs from laboratory psychophysiological testing showed no consistent advantage for one treatment over the other.

Descriptor Key Words: hypertension; thermal biofeedback; relaxation training; cardiovascular reactivity.

For the past few years there has been much discussion at biofeedback meetings of the use of thermal biofeedback as a treatment for hypertension; however, only very limited published reports on this procedure have thus far appeared. Green, Green, and Norris (1979) presented preliminary data

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on 12 patients seen at the Menninger Foundation: Seven of the 12 had clinically meaningful decreases in either systolic blood pressure (SBP) or diastolic blood pressure (DBP) while all 7 of the patients who started the training program on antihypertensive medication were able to decrease the dosage, and 6 were medication-free. Bertilson, Bartz, and Zimmerman (1979) reported on the treatment of 8 college males with borderline (3) or high normal (5) BP with a combination of relaxation training and thermal biofeedback. Statistically significant reductions in SBP were found within sessions as well as from the beginning of training to the end of session 14.

We ourselves have presented data from our ongoing evaluation of thermal biofeedback at meetings of the Biofeedback Society of America (Blanchard et al., 1983, 1984). In this manuscript we present preliminary results from the ongoing research project.

METHOD

Overview

In our research on the nonpharmacological treatment of hypertension, we have targeted a very specific subset of the total hypertensive population, those patients who require at least two drugs to maintain adequate control of their blood pressure (BP). This subpopulation was targeted for two overlapping reasons: While the annual costs of typical doses of diuretics is approximately $50 to $100 per year, when one adds a typical second-stage drug, costs of usual doses increase by approximately $300 to $1,000 per year (McCoy, unpublished data, 1982). Moreover, one adds a significant increment in side effects when the second stage drug is added to the regimen (Physician's Desk Reference, 1984). Thus, our overall goal has been to evaluate whether patients whose BP was well-controlled on two drugs can be adequately maintained on only a diuretic after completing a course of one of two nonpharmacological therapies.

Since this is a preliminary report, we are presenting short-term data from patients in two conditions—our experimental condition: thermal biofeedback training, and the comparison condition: abbreviated progressive relaxation training. This latter condition has been established in other controlled studies (e.g., Taylor, Farquhar, Nelson, & Agras, 1977; Agras, Southam, & Taylor, 1983) to be an effective nonpharmacological treatment for hypertension. More detailed reports from our comprehensive assessment and follow-up procedures will follow in years to come.