A Controlled Comparison of Thermal Biofeedback and Relaxation Training in the Treatment of Essential Hypertension: III. Psychological Changes Accompanying Treatment

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Eighty-seven medicated essential hypertensives received either thermal biofeedback (TBF) or progressive muscle relaxation (PMR) training as a substitute for their second-stage antihypertensive medication. The psychological changes accompanying the treatments were obtained at pretreatment, at post-treatment and at the 3- and 6-month follow-up. Few psychological changes were noted, owing in part to the absence of psychopathological elevations at pretreatment. Short-term psychological changes were greater in patients who were withdrawn from their second-stage antihypertensive medication and then treated compared with those treated and then withdrawn from their medication. This finding may reflect the presence of antihypertensive medication side effects involving psychological factors. In general, TBF patients were more Type B at long-term follow-up compared with PMR patients, who tended toward greater Type A characteristics.

Descriptor Key Words: thermal biofeedback; progressive muscle relaxation; essential hypertension; Type A; trait anger; psychological changes.

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In the treatment of psychophysiologic disorders with self-regulatory treatments such as relaxation and thermal biofeedback, the usual target or goal is the change in some physiological response, such as blood pressure (BP) in the treatment of hypertension, or in some symptom, such as report of head pain in chronic headache. In a recent report from our center (Blanchard, Andrasik, et al., 1986), we noted the significant reductions in trait anxiety and depression that accompanied self-regulatory treatment of tension, migraine, and combined migraine and tension headache. These positive psychological changes, or side effects, appeared regardless of whether there was significant headache relief or not. This finding has led us to examine whether there are similar positive side effects of self-regulatory treatment when the target is essential hypertension.

Although there have been numerous studies of the self-regulatory treatment of hypertension (see McCaffrey & Blanchard, 1985, for a recent review), very few studies have assessed possible psychological changes accompanying treatment. Bali (1979) compared a combination of relaxation procedures to supportive psychotherapy in the treatment of hypertension. The psychotherapy group later received relaxation training. Bali reported significant within-group decreases in Taylor Manifest Anxiety Scale (Taylor, 1953) scores accompanying the relaxation training. No between-group comparisons were reported.

Seer and Raeburn (1980) compared two variants of meditation to a no-treatment control. Although the SCL-90 (DeRogatis, 1975) and STAI (Spielberger, Gorsuch, & Lushene, 1970) were given, no results were reported. Finally, Hafner (1982) compared meditation with and without biofeedback to a no-treatment control. The Rathus Assertiveness Scale (Rathus, 1973) and Middlesex Questionnaire showed no changes for treated subjects. Treated females, but not males, showed decrease in hostility and extra punitiveness.

In the course of conducting a moderate-size comparison of two self-regulatory treatments for essential hypertension (Blanchard et al, 1984; Blanchard, McCoy, et al., 1986), progressive muscle relaxation (PMR), and thermal biofeedback (TBF), we have investigated the psychological changes that accompany treatment. From these data we sought to determine whether there are differential psychological changes associated with PMR and TBF.

**METHOD**

*Overview of Experimental Design and Clinical Outcome*

The details of the experimental design and clinical outcome with regard to blood pressure (BP) and medication reduction have been presented else-