

Stress Management Therapy for Hypertension

Linden W, Lenz JW, Con AH. Individualized stress management for primary hypertension: a randomized trial. *Arch Intern Med* 2001;161:1071–80.

Study Overview

Objective. To test the efficacy of individualized stress management for primary hypertension.

Design. Randomized controlled clinical trial.

Setting and participants. 43 men and 17 women aged 28 to 75 years were recruited with newspaper advertisements and screened by telephone before study inclusion. All participants had a mean ambulatory blood pressure (ABP) greater than 140/90 mm Hg. Exclusion criteria included type 1 diabetes mellitus, hypertension of known organic origin, and congestive heart failure. In general, subjects had fairly healthy lifestyles (few smokers, modest alcohol intake, moderate exercise habits). The study was conducted at a psychological outpatient clinic in Canada.

Intervention. Patients were randomly assigned either to “immediate treatment” ($n = 27$) or to a “wait-list” control group ($n = 33$). Treatment consisted of 10 hours of individualized stress management using semistandardized treatment components. Three PhD-level psychotherapists with specific training in cognitive behavioral therapy delivered the interventions. Patients received an average of 3.8 interventions, of which the most commonly used were anger or hostility treatment, autogenic training, discussion of relationship or existential issues, biofeedback, and cognitive therapy for anxiety. Wait-list participants were subsequently offered treatment, and 22 of them received it. 44 patients receiving antihypertensive medication (74% in the treatment group and 73% in the control group) were instructed to maintain the same drug therapy throughout the study.

Main outcome measures. Mean 24-hour ambulatory systolic and diastolic BP. Other measures were daytime ABP, nighttime ABP, office resting BP, lipid profile, weight, exercise habits, and psychological measures (daily stress, trait anger, preferred anger-coping style, hostility, anxiety, and depression). Patients who changed drug dose or regimen during the trial were excluded from analysis ($n = 4$).

Main results. Mean age of patients was 55.2 years and 54.5 years, respectively, in the immediate-treatment and control groups. Male:female ratios were 19:8 among immediate-treatment patients and 24:9 among controls. 45 participants completed treatment, and 36 had 6-month follow-up data available. BP was significantly reduced among immediate-treatment patients but not among controls (–6.1 versus +0.9 mm Hg for systolic and –4.3 versus –0.0 mm Hg for diastolic pressure). When wait-list group members were later treated, BP was similarly reduced by –7.8 and –5.2 mm Hg. For the combined sample, total change at follow-up was –10.8 and –8.5 mm Hg. BP level at baseline was correlated with BP change ($r = 0.45$ [$P < 0.001$] and $r = 0.51$ [$P < 0.001$], respectively, for systolic and diastolic BP) and degree of systolic BP change was positively correlated with reduction in psychological stress ($r = 0.34$) and change in anger-coping styles ($r = 0.35$ to 0.41). Daytime and nighttime ABP levels also showed a significant reduction. Office BP decreased in the treatment group, but the difference was not significant.

Conclusion. Individualized stress management is associated with reduced ABP. Treatment effects were replicated and further improved by follow-up. Reductions in psychological stress and improved anger-coping strategies appear to mediate reductions in BP change.

Commentary

This study incorporates several factors related to BP research and stress management in order to achieve the best effect size. Blinding is obviously difficult with this type of intervention. Moreover, with so many effective drug therapies available to manage hypertension and with other indications that facilitate drug selection, it is understandable that physicians would be less likely to use or recommend nonpharmacologic therapy. Given that BP response to different classes of antihypertensive medication has been shown to vary based on patient characteristics [1], individuals will probably have variable responses to psychological interventions. Clinical models to identify patients who would benefit most from nonpharmacologic treatment might prove pertinent to practice.

Applications for Clinical Practice

Stress management seems to provide some benefit in treating hypertension. Selection of patients more likely to accept and respond to such interventions as well as availability of qualified therapists are important barriers to treatment application. Other considerations include modest effect size, cost and reimbursement, reproducibility, and duration of response. More research is needed to

better understand these issues.

References

1. Materson BJ, Reda DJ, Cushman WC, et al. Single-drug therapy for hypertension in men. A comparison of six antihypertensive agents with placebo. The Department of Veterans Affairs Cooperative Study Group on Antihypertensive Agents. *N Engl J Med* 1993;328:914-21.

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