

How effective are hypertension self-care interventions?

Evidence-based answer

Simplification of the dosing regimen (eg, once-daily instead of multiple dosing) improves patients' adherence to antihypertensive medications (strength of recommendation [SOR]: **B**, based on a high-quality systematic review of lower-quality randomized controlled trials). Dietary advice promotes modest short-term improvements in self-reported fat intake and fruit and vegetable consumption (SOR: **B**, based on a high-quality systematic review of lower-

quality, randomized controlled trials). Educational interventions alone, in general, do not improve patient adherence to antihypertensive medication regimens (SOR: **B**, based on a high-quality systematic review of lower-quality, randomized controlled trials). Physicians' advice to increase physical activity is not effective, even as part of a self-care plan for hypertension (SOR: **B**, based on 1 randomized trial).

Clinical commentary

Work with patients to set goals for lifestyle changes, and follow-up to see if these goals are met

Promoting behavior change and self-care for chronic illness challenges every family physician. Start with the evidence and promote adherence by simplifying your patient dosing regimens. Watch costs and co-pays. Advise patients at the start of treatment that they are likely to need more than one medication to control their blood pressure. Use combination medications when possible. Emphasize the importance of controlling blood pressure through weekly follow-up appointments until the patient meets his blood pressure target.

Remind patients that hypertension is a "silent disease"—the first symptom of high blood pressure is often a heart attack or stroke. Show patients their Framingham risk score. Work with your patient to *set specific goals* for lifestyle changes. Follow-up to see if these goals are met. Assess barriers to change if goals are not met. Use your health care team and outside resources. Screen for and treat depression. To promote adherence and motivate lifestyle changes, encourage patients to use home blood pressure monitors.

Lauren DeAlleume, MD
University of Colorado Denver
and Health Sciences Center

Evidence summary

Self-care can be defined as activities that a patient undertakes with the intention of improving health or preventing dis-

ease. Self-care for hypertension includes taking medicine as prescribed, monitoring blood pressure response to therapy, and adopting lifestyle recommenda-

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Anthony J. Viera, MD, MPH
Department of Family Medicine,
University of North Carolina at
Chapel Hill

Barbara Jamieson, MLS
Medical College of Wisconsin
Libraries, Madison

FAST TRACK

Dietary advice promotes modest short-term improvements

FAST TRACK**7 studies found a statistically significant improvement in adherence with once-daily vs twice-daily regimens**

tions—increasing exercise, decreasing salt intake, and increasing fruits and vegetable consumption.

Keeping meds simple improves adherence

Various interventions have been developed with the goal of improving medication adherence among patients with hypertension. A Cochrane review included 38 randomized controlled trials (RCTs) of 58 various types of interventions (some tested in factorial trials) designed to improve patient adherence to antihypertensive medications in ambulatory settings.¹ The quality of the studies was generally low due to inadequate allocation concealment, lack of blinding of outcome assessors, loss to follow-up, and the small number of participants in trials.

The authors grouped interventions into 4 broad categories: simplification of dosing regimens; patient education; patient motivation, support, and reminders; and complex interventions. Comparison groups received either no intervention, usual care, or—in the case of simplification of dosing regimens—a daily regimen consisting of more than 1 pill per day vs a once-daily regimen. Because of various types of interventions and different methods of assessing outcomes, pooling of results was, appropriately, not done.

Of all the interventions, simplification of dosing regimens had the most evidence of effectiveness, with 7 out of 9 studies demonstrating a statistically significant improvement in adherence in the intervention group. In the other 2 studies, improved adherence was observed in the intervention group; however, the effect was either not statistically significant or not reported.

Five of the studies used a system that electronically recorded the time and date when a medicine container was opened. All studies using this rigorous system for outcome measurement demonstrated statistically significant improvement in adherence with once-daily vs twice-daily

dosage regimens. Relative improvement in adherence ranged from 8% to 20%.

Educational strategies alone were largely ineffective in improving adherence. Only 1 of 6 studies of patient education intervention demonstrated improved adherence, but the trial was small (n=110), and the effect was not seen in the other studies (total of 1103 patients).

Research on motivating patients is inconsistent

Motivation and support strategies consisted of interventions such as drug reminder charts, self-recording of blood pressure, mail reminders, and home visits.

Overall, out of 24 RCTs studying motivational, support, and reminder interventions, 10 demonstrated statistically significant but small improvements in adherence. These studies relied on measures such as pill counts and self-report to assess adherence rather than electronic monitoring. The marked inconsistency among the body of evidence makes it difficult to determine whether motivational, support, and reminder interventions alone are effective in improving adherence.

Out of 18 studies of interventions classified as complex health and organizational interventions, including many with an educational or motivational component, interventions in 8 studies led to a statistically significant improvement in adherence. Complex interventions included structured hypertension management programs such as work-site care provided by trained nurses. An example of an intervention given in combination is a program of home visits, education, and specialized dosing devices. Because these interventions varied considerably, an overall statement of effectiveness is not appropriate.

Modest success seen in improving diet

A Cochrane review of dietary advice for reducing cardiovascular disease risk

among healthy adults included 29 trials.² Individuals or groups of patients received verbal or printed dietary advice over 1 or more personal contacts. They also received advice by telephone. Ten RCTs of dietary advice in 4328 participants or groups of participants assessed self-reported dietary fat intake.

Overall, intake of dietary fat (expressed as a percentage of total caloric intake) fell by 6.2% (95% confidence interval [CI], reduced 8.4% to increased 4.0%) with dietary intervention over 6 to 48 months. Due to significant heterogeneity between the studies, this overall estimate must be viewed with caution.

Eight RCT studies in 3952 participants or groups of participants assessed self-reported fruit and vegetable intake as an outcome. Overall, intake of fruits and vegetables increased by 1.2 servings per day (95% CI, 0.43–2.1) with interventions over 6 to 48 months. Again, there was significant heterogeneity between the studies. Therefore, this overall estimate must be viewed with caution.

In general, the quality of the studies included in this systematic review was low due to poor descriptions of randomization, lack of allocation concealment, and lack of blinding of outcome assessment. The use of food frequency questionnaires to measure fat and fruit/vegetable intake likely led to reporting bias in these dietary intervention studies. Also, the trials were in healthy adults and not specific to hypertensive patients.

Motivating patients to exercise remains a challenge

We found 1 randomized trial that evaluated the effectiveness of a physician's advice to increase physical activity among patients with hypertension in a general practice setting.³ Physical activity was measured using a validated questionnaire. Patients given the advice as part of self-care for hypertension (n=192)

were no more likely to have increased their physical activity than those not given the advice (n=108) at 2- and 6-month follow-ups.

Recommendations from others

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) states that self-measurement of blood pressure may benefit patients by providing information on response to antihypertensive medication and improving adherence with therapy.⁴

The report also notes that the patient and clinician must agree on blood pressure goals, and that patient motivation to adopt lifestyle changes and take prescribed medication improves when patients have positive experiences and trust their clinicians. ■

References

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Patients' physical activity did not change when physicians suggested they exercise more