Editorial

# Are Lifestyle Interventions in the Management of Hypertension Effective? How Long Should You Wait Before Starting Specific Medical Therapy? An Ongoing Debate

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For as long as anyone can remember, lifestyle interventions have been recommended to lower blood pressure (BP). More than 60 years ago, a rigid low-sodium intake, weight loss, and exercise were treatments of choice. In the 1930s and early 1940s this was the only treatment available for hypertensive patients other than radical surgery, which included extensive sympathectomy and/or adrenalectomy. Rigid diets such as the Kempner rice regimen allowed just rice and fruit juice. Sodium intake was 200 mg/d, a level lower than could be tolerated by a large majority of the population, but BPs were reduced. In patients with severe or malignant hypertension, heart failure and funduscopic abnormalities were improved, and progression of renal disease was at least temporarily delayed. But the interventions were almost impossible to follow and, as noted by Sir George Pickering, a pioneer in hypertension treatment, the diet was "insipid, unappetizing, monotonous, unacceptable, and intolerable." Since that era, numerous studies have indicated that less severe sodium restriction may lower BP.

Weight loss was also recognized many years ago as an effective way to reduce BP. Based on epidemiologic data and several trials, weight loss and sodium restriction have become the cornerstones of recommendations for lifestyle interventions as initial therapy in all hypertensive patients. All of the Joint National Committees on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNCs) since the first report in 1977 have advocated this approach.

No one can argue against such interventions. In fact, if the entire population were to reduce their sodium intake, exercise more, and maintain more optimal weight, hypertension would be less prevalent. There is little doubt that these efforts, plus moderating alcohol intake and reducing stress, would help to reduce overall cardiovascular (CV) risk.

## HOW LONG DO YOU TRY THEM?

We should do everything we can to encourage people to follow these recommendations, but are lifestyle changes truly effective in treating hypertension? Should we depend on these measures to control BP over long periods of time? How long should we wait to judge if they are effective before we begin specific medical therapy? Recommendations for the duration of intervention vary. For example, in a patient with stage 1 hypertension (144/90 mm Hg–160/100 mm Hg), the JNCs have suggested that nonpharmaceutical interventions, especially weight reduction (if appropriate) and sodium restriction, as well as moderation of alcohol intake plus exercise, should be the first approach of treatment for 2–6 months, depending on the presence or absence of other risk factors. In recent JNC reports, the recommended duration of lifestyle interventions before the

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addition of medication has gradually been reduced. On the other hand, the International Society and European guidelines still suggest that in a patient with stage 1 hypertension and no other risk factors, i.e., a low-risk patient, lifestyle changes can be followed for as long as 6 months to 1 year before implementing drug therapy. Perhaps neither of these recommendations is appropriate in view of recent data.

## WHAT DO THEY ACCOMPLISH?

Almost everyone is reluctant to criticize recommendations for lifestyle interventions as initial treatment for hypertension in all cases. It is argued that lifestyle modifications are less expensive and free of the adverse effects of medications—there is merit to the suggestion to continue to recommend this initial approach to therapy. There is little doubt that if the American population were able to reduce sodium intake from the usual intake of about 10 g of salt (4 g sodium) per day to about 2 g sodium per day, BP would be reduced in many patients. In the controlled Trial of Nonpharmacologic Interventions in the Elderly (TONE) study, a reduction of about 30%–40% in sodium intake resulted in a lowering of BP and a decrease in the amount of medication required for BP control. At present, however, we are unable to determine which patients will respond to sodium restriction. Weight loss, if appropriate, will also lower BP, but it is difficult to achieve and maintain. JNC 7 noted that a weight loss of 10 kg (22 pounds) would result in a systolic BP reduction of about 5–20 mm Hg. Similarly, sodium restriction would result in a reduction of about 2–8 mm Hg, and an increase in physical activity would result in a reduction of about 2–9 mm Hg. These numbers, however, may include results of studies that may not have been well controlled; many of these had relatively short-term follow-ups. They also represented data in populations who may not have been typical of the general population: incentives, support groups, and careful patient selection were integral parts of many trials. Most of the well controlled clinical trials of lifestyle intervention did not mimic a "real world" experience. Results do indicate, however, what *might* be accomplished if patients were able to adhere to a specific regimen.

In one long-term (4-year) carefully controlled study—the Treatment of Mild Hypertension Study (TOMHS)—where lifestyle interventions were followed by all of the participants, BP was lowered by 9/9 mm Hg. When various medications were added in patients who continued on lifestyle interventions, an additional decrease in BP of approximately 5/3 mm Hg was noted. There was a significant reduction in CV events in the medication-plus-lifestyle intervention group compared with the lifestyle-intervention–only group. Few outcome data from long-term randomized lifestyle trials are actually available—and may never be, since longer and larger clinical trials of better quality must, of necessity, be sponsored by nationally funded agencies. Further trials might identify patients who may or may not respond to lifestyle changes; however, in the absence of these data, are we on firm ground in suggesting that hypertensive patients be placed on lifestyle change, knowing full well that a majority may not be able to adhere to a program sufficiently structured to lower BP? The answer is still clearly yes. We should continue to recognize and recommend lifestyle interventions in the management of hypertension, but we must also recognize its limitations and not persist in implementing it as a definitive treatment if BP is not reduced in a reasonably short period of time. This, unfortunately, is still a problem.

If patients are able to lose 5–10 pounds, reduce sodium intake by even a small amount, or increase exercise even to a limited degree (walking 3–4 times a week for 30–45 minutes instead of once a week) they probably are reducing overall CV risk. The recommendations are sound. But BP lowering may not be sufficient with these interventions to reach goal BP other than in a small number of low-risk patients with minimal BP elevations. It is disturbing, therefore, that the International Society of Hypertension and British guidelines still advocate a 6–12 month trial of nondrug therapy in patients with stage 1 hypertension and no other risk factors. This may send the wrong message. Some physicians and their patients are following this advice.

Comparative results of lifestyle interventions with medications like methyldopa, ganglion blocking agents, clonidine, reserpine, or even the early β blockers, where side effects were common as BP was lowered, are obsolete points of reference; lifestyle changes were clearly less onerous in these comparisons. Today we have antihypertensive medications that are well tolerated by most people and, if carefully chosen and used in appropriate combinations, can control BP in almost 80% of patients. In short, there is less reason today to delay specific medical therapy. It is no longer appropriate to wait 3–6 months or even longer before starting drug therapy—even in the low-risk patient.

## AN APPROACH

There seems to be little to lose, for example, in obese patients who have stage 1 hypertension

(BP 140/90 mm Hg–160/100 mm Hg), even without other risk factors, in starting medication after confirmation of BP readings and a short trial of nonpharmacologic management. If the BP has been reduced to goal levels and the patient has lost 10–15 pounds with specific therapy plus lifestyle changes, it is logical to stop medication at the end of 6–9 months and evaluate whether or not the weight loss alone will result in continuing normal BPs. One caveat: it may take several months after medication is stopped for BP to rise. A logical approach in patients with stage 2 hypertension or even in patients with stage 1 hypertension and other risk factors is to start specific therapy at the same time as lifestyle interventions. This recommendation is somewhat different than in prior years: in the 1980s and 1990s, a 3–6 month or even longer period of lifestyle intervention was advocated before beginning therapy.

## STRESS REDUCTION

Stress reduction has recently been added to the list of useful lifestyle interventions. Years ago, we entered into a discussion with advocates of transcendental meditation (TM) about its use as definitive treatment for hypertension. This was after it was claimed that TM reduced BP to a significant degree in a large number of patients; however, the studies that reported on TM, like many others that have evaluated nondrug treatment, were poorly conceived and evaluated. Most of these studies were carried out by biased researchers; most of the results could be attributed to regression to the mean since there were few placebo run-in periods and only very short-term follow-up observations. This is not to say that relaxation techniques such as TM are harmful. There is little doubt that if someone were to sit in a quiet room and breathe slowly, with or without a mantra, for 20–25 minutes, BP would decrease. Vascular resistance and pulse rate also decrease as respirations become deeper and less frequent. There is some evidence that over time people who do this will experience some lowering of BP. This is probably related to a moderation in sympathetic activity. Following a program like the Bensen relaxation response as an adjunct to medical therapy is a reasonable approach—but it does not represent a definitive approach to the treatment of hypertension in a large majority of patients.

## THE BOTTOM LINE

Is there a danger in advocating lifestyle interventions for everyone? Not really, unless a patient becomes convinced that this is definitive treatment and continues on lifestyle changes even if goal BP is not achieved. Several clinical trials have noted that the benefit of lowering BP with antihypertensive medications is evident within a short period of time after therapy is begun. Strokes and myocardial infarctions appear to decrease within a 6–12 month period of time in treated compared with control or less effectively treated patients. It can be postulated that within 6 months or certainly 1 year in patients whose pressures remain elevated, there will be changes in vascular function. The process of atherosclerosis is ongoing. These data suggest that early rather than late intervention is a good idea. Hence, the limitation of time on lifestyle changes before starting specific medication.

We should continue to advocate lifestyle changes in all hypertensive patients as well as in people with other CV risk factors. We should be aware that most people do not like to, or in some cases cannot afford to, take medication. We should be aware that most people would like to be in charge of their own destiny, but we should also be aware of the difficulties in adhering to the types of lifestyle changes that may produce good results. Results achieved in carefully controlled clinical trials like the Dietary Approaches to Stop Hypertension (DASH) trial may, in many instances, not prove successful in clinical practice, even with the intervention of health care providers other than physicians.

We should be aware that the benefit–risk equation of antihypertensive drug therapy is clearly weighted in favor of the benefit part of the equation and that prolonging lifestyle intervention in the hope that some benefit may accrue may, in view of available data on the effects of prolonged BP elevation, be a poor strategy. The bottom line is that almost all hypertensive patients require medication for the long-term control of BP and prevention of CV disease.