

Hypertension in the Older Patient

Based on presentations by Gary Gerstenblith, MD

Presentation Summary

The increased prevalence of hypertension in the elderly should not be considered a normal consequence of aging. The majority of older patients have elevated systolic blood pressure. The risk of developing coronary disease and heart failure increases as the systolic blood pressure increases, but antihypertensive treatment is successful in lowering the risk of cardiovascular and cerebrovascular disease.

Despite the documented success of antihypertensive therapy in treating hypertension in clinical trials, the reality is that in the general population, the control of hypertension is very inadequate. The most recent National Health and Nutrition Examination Survey (NHANES) found that only 27.4% of the hypertensive population has blood pressure controlled to 140/90 mm Hg or less. The Sixth Report of the Joint National Committee on the Detection, Awareness, and Treatment of Hypertension (JNC-VI) addresses these problems and provides guidelines for management.

A major management emphasis advocated in JNC-VI is stratifying patients into risk groups according to overall cardiovascular risk and the presence of target organ damage. Lifestyle modifications are stressed for all patients with hypertension, and diuretics and long-acting calcium channel blockers are endorsed as appropriate first-line agents in older patients with isolated systolic hypertension. The report also provides compelling indications for the use of certain drugs, advocates use of long-acting agents in order to increase compliance, and recommends use of low-dose drug combinations that can increase efficacy and safety, all important considerations in the older patient with hypertension. The role of hypertension specialists in managing difficult-to-treat cases is also stressed.

Systolic hypertension in the elderly is a disease that confers significant cardiovascular risk. Several treatment options are available for managing isolated systolic hypertension and to decrease cardiovascular morbidity and mortality.

The management of hypertension in older patients is becoming an increasingly important issue for practitioners in all healthcare environments. A major reason is that the elderly constitute the most rapidly growing segment of the American pop-

ulation,¹ increasing both in number and in proportion. "But even more impressive than the proportion that they represent of our total population is the proportion that they represent of our patient population, particularly our patient population with cardiovascular

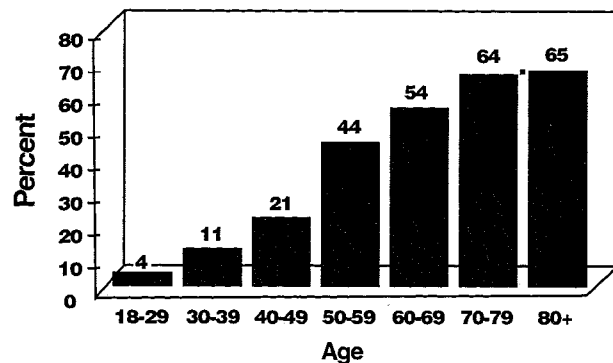
disease," said Gary Gerstenblith, MD, Professor of Medicine and Director of Clinical Trials, Cardiology Division, Johns Hopkins Hospital, Baltimore, Maryland. Although only about 13% of Americans are currently 65 years or older, they represent more than 50% of patients with hypertension, coronary artery disease, or congestive heart failure.

Data from the Third National Health and Nutrition Examination Survey (NHANES III) support the high prevalence of hypertension in the elderly and show that more than 50% of individuals over age 65 have elevation of systolic or diastolic blood pressure or both (Figure 1).² The majority of patients have isolated systolic hypertension (ISH), defined as a systolic blood pressure of 140 mm Hg or higher in the presence of normal diastolic blood pressure (Figure 2).³ Systolic hypertension increases with age and is so common that, according to Dr. Gerstenblith, it was at one time thought to represent a normal physiologic change, especially in older women.

The rise in blood pressure and increased prevalence of hypertension in the elderly are not benign occurrences and should not be viewed as a normal consequence of aging. The increased coronary risk posed by elevated systolic blood pressure has been reported in several studies, and data from the Framingham Heart Study show a strong relationship between systolic blood pressure and cardiovascular events (Figure 3).¹ Furthermore, this relationship is more pronounced in people aged 65 and older when compared with those aged 35 to 64.¹ Hypertension is also an important antecedent for the development of heart failure, and in the Framingham study, hypertension antedated heart failure in 91% of cases and was associated with an independent two- to threefold greater risk of heart failure.⁴

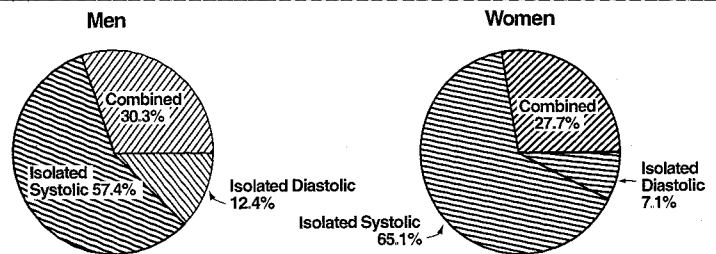
Beyond correlation and association, evidence of causation is needed to

Figure 1. Prevalence of Hypertension in the United States



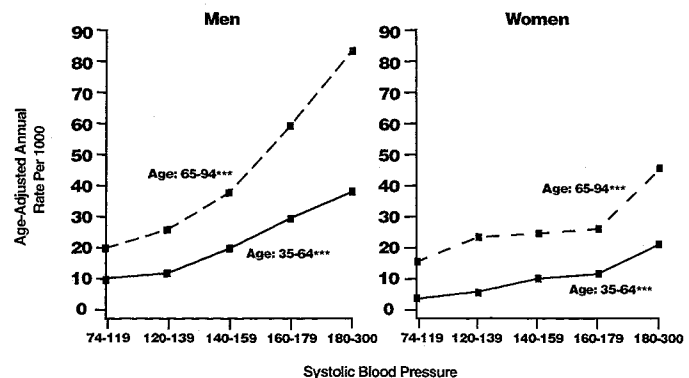
Source: Adapted from Kannel WB. Cardioprotection and antihypertensive therapy: The key importance of addressing the associated coronary risk factors (The Framingham Experience). *Am J Cardiol* 1996;77:6B-11B Used with permission from Excerpta Medica, Inc. Copyright 1996.

Figure 2. Distribution of Hypertension in the Elderly



Source: Adapted from Wilking SVB, Belanger A, Kannel WB, D'Agostino RB, Steel K. Determinants of isolated systolic hypertension. *JAMA* 1988;260:3451-3455 Used with permission. Copyright 1988. American Medical Association.

Figure 3. Relationship of Cardiovascular Risk to Systolic Hypertension



Source: Adapted from National High Blood Pressure Program Working Group. National High Blood Pressure Education Program Working Group Report on Hypertension in the Elderly. *Hypertension* 1994;23:275-285 Used with permission

establish the link between systolic hypertension and coronary risk, noted Dr. Gerstenblith. As highlighted in two recent trials in patients with ISH, reduction of systolic blood pressure by antihypertensive treatment does lead to significant reduction in cardiovascular events. The Systolic Hypertension in the Elderly Program (SHEP) trial showed that a diuretic-based treatment regimen provided significant protection from stroke, nonfatal myocardial infarction plus coronary death, and major cardiovascular events,⁵ and,

in addition, significantly lowered the incidence of fatal and nonfatal heart failure and of hospitalization for heart failure.⁶ The second major trial that demonstrated the benefit of antihypertensive therapy in older patients with isolated systolic hypertension was the Systolic Hypertension in Europe (Syst-Eur) trial,⁷ in which active treatment with the long-acting dihydropyridine calcium channel blocker nitrendipine led to a significant reduction in the rate of strokes and major cardiovascular endpoints.

Although these compelling data underscore the importance of the diagnosis and aggressive treatment of systolic hypertension, "our ability to do this in the American population is very inadequate" according to Dr. Gerstenblith, referring to data showing that only 27.4% of the hypertensive population had their blood pressure controlled to 140/90 mm Hg or less.² "We have a long way to go in terms of identifying the hypertensive population and implementing treatment and achieving adherence to successful therapy," he noted.

The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-VI) addresses this problem and includes guidelines for the diagnosis and management of hypertension.⁸

JNC-VI and Its Relevance to Management of Hypertension in the Elderly

Some of the areas of emphasis in JNC-VI are listed in Table 1.

Risk Stratification. A major new dimension in JNC-VI is the risk stratification of hypertensive patients, which is based not only on blood pressure as in previous JNC reports but also on factors such as the presence of other cardiovascular risk factors and target organ damage. The risk factors include smoking, dyslipidemia,

Table 1. What's New in JNC-VI

Prevention
Stratification of patients according to risk
Selection of "compelling" indications for first-line drugs
Emphasis on individual drug therapy based on concomitant illnesses
Endorsement of long-acting formulations
Endorsement of combination therapy
Referral to a hypertension specialist

Table 2. Risk Stratification and Treatment*

Blood Pressure Stages (mm Hg)	Risk Group A (No Risk Factors No TOD/CCD)	Risk Group B (At Least 1 Risk Factor, Not Including Diabetes; No TOD/CCD)	Risk Group C (TOD/CCD and/or Diabetes, With or Without Other Risk Factors)
High-normal (130-139/85-89)	Lifestyle modification	Lifestyle modification	Drug therapy
Stage 1 (140-159/90-99)	Lifestyle modification (up to 12 months)	Lifestyle modification [†] (up to 6 months)	Drug therapy
Stages 2 and 3 (160/100)*	Drug therapy	Drug therapy	Drug therapy

*Lifestyle modification should be adjunctive therapy for all patients recommended for pharmacologic therapy.

[†]For patients with multiple risk factors, clinicians should consider drugs as initial therapy plus lifestyle modifications

TOD/CCD = Target organ disease/clinical cardiovascular disease.

From: *The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*, NIH Publication No. 98-4080, 1997.

diabetes, older age, male gender, postmenopausal status, and a family history of premature cardiovascular disease. The coexistence of clinical cardiovascular disease is an important consideration in the older patient. Left ventricular hypertrophy (also an independent risk factor), fixed atherosclerotic disease, transient coronary vasoconstriction, and symptomatic heart failure are all associated with hypertension. A high percentage of older individuals (up to 40%) with heart failure have diastolic left ventricular dysfunction. Other comorbidities of importance are cerebral and peripheral vascular disease, renal disease, and retinopathy.

The JNC now places patients into three risk groups (Table 2). Patients in risk group A have high-normal blood pressure. Lifestyle modification is recommended for this group, unless the blood pressure is 160/100 mm Hg or higher, in which case, drug therapy is also recommended. Risk group B patients have at least one risk factor but no cardiovascular disease or target organ damage. Lifestyle modifications are recommended unless multiple risk factors are present, in which case, initial drug therapy should be considered. For patients in risk group C with diabetes, target organ damage, or clinical cardiovascular disease, JNC-VI recommends drug therapy.

Lifestyle Modifications. "Lifestyle modification should be emphasized in all of our patients. These include initiation and maintenance of weight reduction, moderation of ethanol intake, aerobic physical activity, adequate calcium and magnesium intake, cessation of smoking, and reduced intake of saturated fat and cholesterol," advised Dr. Gerstenblith. These are important not only for the management of hypertension but also for lowering overall cardiovascular risk. The recently completed Trial of Nonpharmacologic Intervention in the Elderly (TONE) showed that weight loss and reduced sodium intake were a feasible, effec-

tive, and safe means to control high blood pressure and decrease the need for antihypertensive medication in older patients with hypertension.⁹ "So although many physicians hesitate to recommend these lifestyle modifications to patients because they don't think patients will be able to achieve them, this study showed that in a high-risk population of over 800 elderly hypertensive patients, dietary interventions were feasible, effective, and safe and provided independent additive benefit," said Dr. Gerstenblith.

Drug Therapy. The goals of antihypertensive therapy are not only to reduce blood pressure but also to lower cardiovascular risk. With that in mind, the JNC-VI recommends that when selecting an antihypertensive agent for older patients, its effect on other cardiovascular risk factors such as left ventricular hypertrophy, lipids, and glucose and on concomitant illnesses such as cardiac, vascular, and pulmonary disease must be taken into account. Interactions with concomitant medications are also an important consideration because older patients are likely to be receiving multiple medications. Thus, the new report emphasizes individualized drug therapy. Cost and compliance also strongly influence the choice of medication.

As a result of data from several clinical trials, JNC-VI also recognizes four special conditions where there is compelling indication for specific first-line therapy unless there is a significant contraindication. Thus, for the older patient with ISH, diuretics and long-acting dihydropyridine calcium channel blockers are recommended, based on the results of the SHEP and Syst-Eur trials. The other three specific indications are (1) angiotensin-converting enzyme (ACE) inhibitors or diuretics for heart failure, (2) ACE inhibitors for diabetes with proteinuria, and (3) β -blockers without intrinsic sympathomimetic activity for myocardial infarction. In addition, JNC-VI addresses numerous other

special situations in which specific therapies have either a favorable or an adverse effect on comorbid conditions.

Some side effects of antihypertensive medications are more prone to occur in older patients because of changes in cerebral vascular autoregulation. In older individuals, when cerebrovascular perfusion pressure decreases, the resistance does not decrease as much as it does in younger individuals, which leads to decreased flow and may cause the older patient to experience side effects. Thus, in older patients, it is important to start with a low dose of the initial drug and slowly titrate upward. The blood pressure does not need to be normalized in one or two visits, and the standing blood pressure should always be measured, advised Dr. Gerstenblith.

JNC-VI endorses the use of long-acting, once-daily drugs that provide 24-hour efficacy with at least 50% of the peak effect remaining at the end of the 24-hour period. This promotes compliance and also achieves steady blood pressure control, particularly in the early morning when cardiovascular events are more likely to occur. The JNC report also recognizes that low-dose combinations of two agents may provide greater efficacy with fewer adverse effects.

Because high-risk patients require higher doses or combination therapy or shorter intervals between changes in medication, follow-up should be within 1 to 2 months after initiating therapy. If the blood pressure is not controlled after the full dose of a medication is reached, the reasons need to be considered. "The most common reason is that this patient isn't taking the medicine," said Dr. Gerstenblith. JNC-VI also recommends that if blood pressure has been at or below goal for 1 year, the dose or the number of agents can be reduced, particularly if successful lifestyle modifications have been introduced.

Finally, JNC-VI recognizes that hypertension specialists may play an

important role in guidance and management of hypertension and recommends referral of resistant or complex cases to these specialists. These individuals may also act as facilitators by adapting and promoting JNC-VI guidelines for local use.

"In summary," Dr. Gerstenblith concluded, "isolated systolic hypertension is common in the elderly. We know that it affords significant cardiovascular risk but also that it is easy to detect. We have many excellent treatment options, and we know that treatment can decrease the cardiovascular risk."

... DISCUSSION HIGHLIGHTS ...

Age-Related Vascular Changes

Dr. Schulman: What is it about the age-associated changes in the vascular system that gives us such a high prevalence of isolated systolic hypertension, and do these changes predict that the elderly may respond differently to the different classes of drugs than others in the hypertensive population?

Dr. Gerstenblith: I think one of the most important changes in vasculature with aging is increased stiffness of the central vessels. And that's manifest from a blood pressure standpoint by an increase in systolic pressure and a decrease in the diastolic pressure. This also results in an increase in the pulse wave velocity from the aorta to the iliac bifurcation because of the increased stiffness of the vessel, so there is an increase in the forward and the backward pulse wave velocity. In younger individuals, the reflected wave returns in diastole and augments diastolic pressure, but in older individuals, it returns earlier, in late systole, and augments systolic pressure. Therefore, by virtue of the change in stiffness, there is an increase in pulse pressure with higher systolic and lower diastolic blood pressure.

I think the changes in central vascular properties that bring this about would probably result in a normal mean pressure, so there would be a higher systolic, lower diastolic, and a normal mean pressure. If the cardiac output is normal, and the mean pressure is normal, then probably the peripheral vascular resistance is likely to be normal as well. By looking at the pressure, one can tell to what extent this high systolic pressure is due to changes in central vascular properties versus to what extent it is due to the change in peripheral resistance by the value for mean arterial pressure.

Dr. Schulman: Since pulse pressure is an independent predictor of events should we worry about that or just about systolic blood pressure of the elderly?

Dr. Brunton: I guess my concern has always been shear pressure in the coronaries that the pulse pressure seems to exaggerate. I think as we start to understand coronary physiology, this would be of real concern.

Dr. Gerstenblith: It would be hard to separate out the influence of treating systolic blood pressure versus pulse pressure per se, but I would imagine the data must be in the trials. We should be able to look retrospectively at patients who had normal mean pressures, those who had high pulse pressures but normal mean pressures, and those with high pulse pressures and high mean pressures.

Hopefully, we'll be able to get that information from studies like the HOT [Hypertension Optimal Treatment] trial. It also would be nice if we had an agent that would specifically influence central vascular stiffness without changing resistance values.

Dr. Wagner: Is the J-curve phenomenon a bigger concern in older than in younger populations because of the

elasticity and the change in physiology of the vessels?

Dr. Gerstenblith: In the studies of the J-curve data, the J-curve was particularly prominent in those who had coronary artery disease and/or those who had electrocardiographic abnormalities. To an extent, older individuals

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who are more likely to be in that category may be more likely to have an increase in events as the diastolic pressure is lowered. However, the HOT study did not demonstrate a J-curve relationship.

Diagnosing Hypertension

Dr. Brunton: I think one of the challenges that we face in managing the systolic hypertension of the elderly, not just hypertension in the elderly, is the true diagnosis. I think it's very difficult for the practitioner to know whether a patient has pseudohypertension or hypertension.

Dr. Messerli: I don't think you have to worry too much about pseudohypertension; it's a rare entity. In our study, it took us about 4 years to find about 17 patients who really had distinct pseudohypertension.¹⁰ In the usual elderly hypertensive patients, I don't think it's a major problem. So by and large, unless you really suspect severe arterial disease, or the patient is a heavy smoker, you don't have to be too concerned about that.

Dr. Brunton: That's very reassuring, but it's the issue of the white-coat hypertension as well. The elderly have their share of anxiety in seeing the doctor as much as anyone else. Once again, the question is, "How does one make the diagnosis in the elderly?"

Dr. Gerstenblith: To the extent the white-coat hypertension is due to a sympathetic response, it might be a little less in older patients than in younger patients because of the decreased β -adrenergic responsiveness. I think it's always an issue. Is this blood pressure elevated just in the medical environment, or is it elevated all the time? One relatively straightforward way to determine this would be to look at target organ damage. If there is retinopathy, for example, we treat the patient and assume that it isn't just a white-coat problem. But if there isn't any evidence of target organ damage, then one algorithm would be to obtain the blood pressure in the outpatient setting. If the blood pressure is elevated, initiate treatment. If it's not elevated, then do ambulatory monitoring, and check the results.

Dr. Wilson: We have actually looked at this issue of white-coat hypertension, especially as it relates to the managed care environment. When we find the presence of white-coat hypertension, or if we suspect it, we look for the risk. If it's a high-risk patient, we will treat the patient.

The other thing is we try to get those patients out of the office environment and teach them how to take blood pressure themselves at home. If there's a good indication that their blood pressures are significantly lower or closer to normal at home then we'll do ABPM [ambulatory blood pressure monitoring] on the patient. That typically is a fairly efficient way to do it.

Dr. Messerli: I think that's a really good approach. It has been clearly shown that these patients, or at least

some of them, are at risk and ought to be treated; there's no doubt about that. For the others, just give them a blood pressure monitor to take home and measure their blood pressure. Then, you will have a good idea of what's really happening at home and whether they really need treatment. Don't do any 24-hour ABPM. I don't think that is really helpful. The home monitoring is cheaper and gives you just as valuable information as the 24-hour measurement.

Dr. Wilson: We actually did a study that looked at the ability of home blood pressure monitoring (HBPM) to predict lack of 24-hour control and also the ability to predict white-coat hypertension, in comparison with ABPM, which is the standard, and with office measurement. Obviously, the office readings did not correlate well with ABPM, but the home measurement actually did fairly well; it was much better than office monitoring. It wasn't a perfect correlation, but it was good, a much better correlation with ABPM than office pressure was. For the patient who's truly borderline, the patient you're trying hard to decide whether to treat and you're not sure if you trust the home readings, I think an ABPM may be warranted. Or at least get a home monitor that records the results, so the patient can't change the results, if that's what you suspect. Otherwise, we actually feel pretty comfortable using the home monitoring results to make those decisions.

Treatment Issues

Dr. Brunton: One of the concerns that I see with treatment of systolic hypertension in the elderly is the concern about the old issue, the 100 plus your age phenomenon, that you need to have a certain amount of systolic blood pressure to perfuse the cerebrum. We're all concerned about the level to which you bring the blood pressure

down. If you start off with 180, should 160 be your target? Should you be going lower? How much of a change do you want to make and how quickly?

Dr. Gerstenblith: In the SHEP trial, if the systolic blood pressure was over 180 mm Hg, the target was a pressure under 160 mm Hg; if it was between 160 and 180 mm Hg, a 20-mm Hg change. I believe those were the same guidelines that the Syst-Eur trial used. It's important to measure the blood pressure standing, particularly in older patients who may have significant orthostatic falls in pressure.

Reversing the Trend: Education, Autonomy, Partnering

Dr. Jacobs: Most of the indications and contraindications in JNC-VI were written in terms of a drug class. The problem is that within drug classes, as one deals with the practicing physician, there are favorites. One of the major problems is: How do we prepare the practicing physician population to look beyond favorites and to understand how much flexibility they have within drug classes to accomplish the therapeutic goals? Is the class sufficient or are drugs within a class so different?

Dr. Gerstenblith: It depends. For example, if we talk about a β -blocker or an ACE [angiotensin-converting enzyme] inhibitor or a nondihydropyridine calcium channel blocker we can talk of class. But when we say 24-hour efficacy or 50% of activity remaining at the end of the 24-hour period, that's not true for all ACE inhibitors or all β -blockers, or all dihydropyridine calcium channel blockers. Therefore, when we consider the formularies, we should consider not only the class of agents, but the pharmacokinetics of the agents. We should also take the clinical trials into consideration

because sometimes there is a benefit with one agent in the class but not with another agent in the same class. Sometimes we find new divisions within classes. With β -blockers, we found some that had ISA [isolated systolic activity] and some that didn't have ISA, and that wasn't always recognized when β -blockers were first

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— Robert P. Jacobs, MD, MBA

introduced, so there may be an advantage in employing a specific agent in some of the long-term trials.

I think that physicians do have favorites, and I think that we should try to encourage them to use the most effective agents with which they are familiar. This may be an important factor in terms of successful antihypertensive therapy.

Dr. Shepard: Is there a way of quantifying the risk factors, both other cardiovascular risk factors and end organ damage, to a score similar to that used in the Framingham study for the prior risk factors? Then, based on statistical functions of cardiovascular risk, you can quantify the effect of other risk factors. I would think the same might be true with end organ damage so that you would be able to calculate your risk with no treatment and then estimate the benefit of various treatments for that risk. Thus, it might be possible to quantify how many risk factors a patient has, the importance of different risk factors, and their severity and individualize the therapy in a more systematic way.

Dr. Wagner: The only example I can think of is a risk instrument the

American Heart Association has for assessing risk of heart disease based on age, smoking status, presence of diabetes, and various other factors. The patients score themselves and come up with a number that indicates whether they have a low, medium, or high risk of having heart disease in a certain time period.

Dr. Jacobs: What you describe is a great way of getting the community interested and of attacking this problem of the low 27.4% success rate, which is really the fundamental problem that we face in this whole area.

Dr. Brunton: The Health Risk Appraisal is something that we've used as part of our health assessment. It evaluates all types of risk, and not only does it bring it to the community, but more importantly, it individualizes the risk for each patient. It can then be used as a motivational and educational tool to show the patients that if their blood pressure was normal their risk would be lower. Hopefully, that will translate into better compliance and better health behaviors.

Dr. Wagner: One of the reasons why hypertension awareness, treatment, and control have plateaued is that we have used traditional channels of disseminating information. The patient comes to the physician, the physician treats the patient, and the patient goes home. We're going to have to use new ways of disseminating information and create new channels for people to get information and receive treatment. A multidisciplinary approach is very important. Also, with regard to the issue of formularies, I think the one thing that physicians need to develop is a sensitivity to one of the major barriers, and that is cost, particularly for individuals who do not have coverage for medicines. These medicines can be dramatically different in terms of cost, and this leads to a tremendous amount of noncompliance and cheating on the

regimens. Very little has been done to educate the physician on these issues. Physicians have a fundamental concern and appreciation for their patient but they only see the clinical side of the patient, and are usually unaware of other concerns the patient may have.

Dr. Brunton: I think that compliance is really the major challenge we face with all chronic diseases. Hypertension has always been used as the paradigm because it is an asymptomatic disease. We know that half of the people stop their therapy in the first year. I think cost is one aspect, inconvenience is another, and then when you add side effects you've got a really awful triad, so there's very little to motivate the patient. Also, there isn't as much attention being paid to hypertension now as there is to lipids. So when the National High Blood Pressure Education Program was started, hypertension received a lot of attention, and people got excited about it. Now that excitement has moved toward lipids, and we're not seeing the same kind of research attention or at least public attention.

Dr. Gerstenblith: Hyperlipidemia is so much easier to diagnose and treat than hypertension.

Dr. Jacobs: Our discussion so far has focused on the physician, and I think that we actually have to target the patient and the physician equally and take at least a two-pronged approach. Autonomy is supposed to be one of our drivers.

Dr. Wilson: One of the tools that we found that raises the threshold of tolerance for the patient is to empower the patient as much as possible. So, in many of the efforts we've put together, whether it's hypertension disease management or just an individual treatment of a patient in a practice, we teach the patient to take back some of that control, and that is, we teach the

patient how to do the home blood pressure monitoring themselves. We think that if it's done right, and the patient understands the importance of home monitoring and the importance of home-derived values, if the providers are taught to use those results and to keep the patient continually in the loop, and those results are actually used to evaluate the patient, that sends a very powerful message back to the patient. The patient becomes typically more compliant with therapy and is more involved in therapy. Our program for hypertension, which we started 8 years ago in a managed care environment, is built on home blood pressure monitoring, and because the patients are doing it themselves, that's really how we think we've got some of the positive results.

Dr. Brunton: I'm seeing that as well. The elderly are much more likely, I think, to adhere to a program of therapy and bring in the monitoring data. However, for a 35-year-old man, the concept of having to be on therapy for the rest of his life because of some long-term cardiac problems is harder to grasp than for somebody in his or her senior years who is looking at preserving life and preserving vitality and for whom the idea of a stroke is a much more proximal event. Therefore, it's easier to do these kinds of monitoring, I think, with different age groups.

Dr. Wilson: I agree. The only caveat is that there's a different mindset now between the older and younger generations. Older patients were typically brought up in a society in which the doctor knew best. However, the next generation wants more information, wants to make its own decisions, and wants to become more involved in the information derivation process.

Dr. Brunton: I think you get into the whole issue then in terms of behavior and the health belief model. The

health decision model is an extension of this model, which helps explain patients' thinking. What helps a person make a positive decision about his or her health behavior is personalizing the approach, especially when the person is feeling somewhat vulnerable—the so-called “teachable moment.” Hence, as you look at communication between physician and patient and at developing a partnership with that person, you need to get a sense of what hypertension means to that person and also what the therapy means, particularly with a younger generation that not only wants to be involved but needs to be involved. You can then individualize and negotiate a treatment regimen.

Dr. Wilson: The hard part about building that partnership though in today's healthcare environment is that physicians maybe have 3 or 5 minutes of real time with the patient to handle hypertension as well as all the other comorbid conditions for which the patient is there.

Dr. Brunton: It's a primary care issue. It's the most common reason to see a primary care physician. I don't agree with the 3- to 5-minute limit. You also have the benefit of longevity and the continuity experience with the patient. You don't have to and should not deal with it all in one visit. The problem I think occurs in some managed care environments, particularly with the younger group, when that continuity is interrupted, and you aren't building the same kind of bonds with a patient that you could in the past. In circumstances where health plans may change every year or so, and when you don't have that relationship building up, there's less of an investment in the long-term outcome. I still think that it doesn't all need to be done in one visit.

Dr. Whittlesey: We've shared Dr. Wilson's enthusiasm about encourag-

ing home blood pressure monitoring for our patients. Another important element is to have additional educational material provided for the family members. If the wife understands what the real risks are to her husband, there might be better compliance with diet and medications. We've used the *Time-Life* video series for patients who we felt needed additional educational material. We used our pharmacy program to target a small group of patients we thought were the least compliant. We sent the materials to the home hoping that we could get family and patient involvement in the proposed treatment regimen.

Dr. Wagner: The healthcare financing and what we reimburse for are also integral to this issue. Almost all of the 9000 codes in the CPT-4 book, except for a handful, deal with treatment of disease. They don't deal with prevention and management of illnesses. And that's really a problem. This gets back to the issue of the physician having only 3 to 5 minutes with a patient. Many interventions that are considered to be beneficial are not paid for, even medications. We'll pay for an angioplasty or an open heart surgery, which is certainly necessary and important, but we won't pay for antihypertensive medications, and that doesn't make economic or any other type of sense.

Dr. Jacobs: Part of the problem, of course, is that managed care has been terribly cost driven and also terribly disruptive for physicians and patients, but what's not thought about is the underlying rationale for why some sort of a rational care system must exist, regardless of the name we give it. In fact, everything we've spoken about so far argues that the way it was has not dealt with a disease that is extremely common, relatively easy to diagnose, and relatively easy to treat. Just look at the data in terms of patient ascertainment, patient management, and outcomes. I think that as a medical community we have really fallen down

on the job. Unfortunately, a federal program like Medicare doesn't cover things like counseling and medication, and that's really the reason some alternative insurance mechanism is desperately needed, as is a different way of delivering care.

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