A 38-YEAR-OLD MALE WITH PREHYPERTENSION

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BACKGROUND

A 38-year-old Mexican American man presents to the primary care physician after being rejected for a life insurance policy, despite his stated good health. He takes lansoprazole (15 mg) and naproxen 220 mg as needed for left knee stiffness, and psyllium tablets once a day. He injured his left knee playing football in high school. He has no allergies.

His 60-year-old father has been hypertensive and dyslipidemic since his 40s, and had a myocardial infarction at age 57, followed by triple coronary artery bypass surgery. His 59-year-old mother has treated hypertension for 4 years. Both parents are moderately overweight.

He is divorced with 2 children, ages 13 and 9 years. He drives a local delivery truck and does home repair as a second job. Otherwise, his lifestyle is sedentary. He drinks 1 to 2 beers per day. He smokes 1 pack of cigarettes per day, as he has for 20 years. He notes intermittent insomnia, mild occasional heartburn, and hemorrhoids, for which he takes over-the-counter preparations occasionally.

He stands 5’ 7” tall and weighs 200 pounds (body mass index = 31.4 kg/m²). His blood pressure is 128/88 mm Hg (sitting), with a pulse rate of 76 and regular. Physical examination discloses a waist circumference of 44”, a protuberant abdomen, but no other abnormalities. He had the following blood tests the previous week: fasting blood glucose, 122 mg/dL; total cholesterol, 194 mg/dL; triglycerides, 199 mg/dL; high-density lipoprotein-cholesterol, 34 mg/dL; low-density lipoprotein-cholesterol, 120 mg/dL; serum creatinine, 1.0 mg/dL; urinary albumin-creatinine ratio, 29 μg/mg.

ASSESSMENT

This person has prehypertension, dyslipidemia, impaired fasting glucose, and the metabolic syndrome. He is referred to a dietitian and encouraged to lose weight (at least 20 pounds, which is 10% of his current body weight) and develop a regular exercise routine. He is also encouraged to stop smoking, in which he expresses an interest (in view of his father’s history of cardiovascular disease and smoking) and asks for information on programs to help stop smoking. He is asked to return in 3 months.

CLINICAL COURSE

Three months later, he continues to smoke, has lost 4 pounds, and his office blood pressure is 126/86 mm Hg. He is praised for his weight loss efforts, although he is also asked to redouble his weight loss and exercise efforts, use a home blood pressure monitoring device (with instructions to measure his blood pressure each morning at the same time), and return in 2 weeks.

Two weeks later, he returns. His office blood pressure is 142/92 mm Hg, fasting blood glucose is 121 mg/dL, and his average home morning blood pressure reading (having completed the 14 readings as instructed) was 126/90 mm Hg.

DISCUSSION

This is a challenging patient because, in addition to his metabolic syndrome (dyslipidemia, elevated blood pressure, impaired fasting glucose, and increased waist circumference), he is a smoker with a positive family history of premature cardiovascular disease. He is young and has prehypertension, which was not even considered a blood pressure problem until JNC-7 (Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure) focused attention on it. Indeed,
there is still some controversy regarding whether intensive treatment should be offered to prehypertensive people; some think to focus instead on controlling hypertension in those who are most at risk. However, his 10-year risk of coronary heart disease (using the Framingham risk score) is 6%, which is nearly the maximum for a 38-year-old man, and which ignores his impaired fasting glucose, his obesity, and his family history. These other risk factors are creating an environment in him in which future hypertension is almost guaranteed. Moreover, his blood pressure crossed into the hypertensive range on his last visit, and is corroborated by home readings higher than the current home blood pressure threshold of 135/85 mm Hg. After just 2 more birthdays, his 10-year risk of cardiovascular disease will nearly triple to 16%, if no intervention occurs.

Dissection of his Framingham risk score shows that 8 of his 10 current points are attributed to his smoking, suggesting that this may be the most fruitful intervention. Diet and exercise, of course, are universally recommended as first steps in reducing weight, blood pressure, and risk for diabetes, but his recent relatively unsuccessful experience is not uncommon. Taken together, these risk factors predict a dire future, unfortunately similar to that of his father. Furthermore, many data sets have concluded that prehypertension is associated with a significantly higher risk of a cardiovascular event, even in the next 6 to 8 years, than normal blood pressures, even after statistically adjusting for all other risk factors.

Currently, none of the marketed medications for hypertension are approved by the US Food and Drug Administration for prehypertension, in part only because of the recent recognition of the associated cardiovascular risk of this common condition. As discussed by Dr White earlier in this monograph, the Trial of Preventing Hypertension (TROPHY) is the largest clinical trial to formally evaluate an antihypertensive medication in prehypertensive patients. The results of TROPHY showed a highly significant 66.3% relative risk reduction after 2 years of treatment with a medium dose of an angiotensin receptor blocker (ARB)—without dose adjustments, and without a blood pressure goal—and a significant 15.6% reduction after 4 years (even when the 2 years of treatment were followed by 2 years of placebo). As the TROPHY investigators noted, “untreated hypertension is a self-accelerating condition.”

Given his daunting risk factor profile and recent lack of success with lifestyle modifications, I would have a serious discussion with him and recommend initiating antihypertensive medication, probably an ARB, because 2 independent studies have shown it to be effective in lowering blood pressure in those with prehypertension, and because an ARB appears to reduce the risk of new-onset diabetes in clinical trials. I would not prescribe a diuretic because of the risk of erectile dysfunction in a young man, and his already high fasting glucose and triglyceride levels, both of which are associated with a high risk of new-onset diabetes.

It may be a challenge to convince him to start on medication when he “feels fine,” he’s so young, and his insurance is limited to coverage of hospitalization and catastrophic illness. I would couch my recommendation for this medication as part of a comprehensive program of lifestyle modifications (including tobacco cessation), which would probably do more to lower his overall cardiovascular risk than the medication alone. This will require a comprehensive effort from our nurse-educator, our nutritionist, other healthcare professionals in our practice, and his family members to ensure frequent patient contact, empathy, in-depth and culturally sensitive patient and family education, and a well-structured, realistic plan to gradually introduce these behaviors as permanent changes to his lifestyle.

CONCLUSIONS

Treating prehypertension with drug therapy raises many questions and can pose additional challenges beyond those encountered when treating a more “typical” hypertensive patient. Because hypertension is often an asymptomatic condition, it is easy for patients to forgo or excuse poor adherence to medication or lifestyle modifications. However, as the TROPHY study indicated, and as we are learning more about the pathophysiology of hypertension, cardiovascular risk begets cardiovascular risk, making hypertension the top risk factor for cardiovascular disease worldwide. Prehypertension is very often a precursor to hypertension, so the earlier it is addressed and treated, the greater the likelihood that future cardiovascular disease can be avoided.
REFERENCES


