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Early to Rise? Your Blood Pressure May Be Too!

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Blood pressure varies throughout the day depending on foods eaten, physical activity, and emotional stress. Unfortunately, for some people, their blood pressure may be too high in the morning. This is called *morning high blood pressure* or *morning hypertension*. Researchers have found that morning hypertension increases the risk of heart and blood vessel problems such as stroke. Even in patients with well-controlled blood pressure, 50% still have high morning blood pressure.

What Is Blood Pressure?

Blood pressure is created when blood is pumped by the heart into our blood vessels. A normal home blood pressure reading should be less than 135/85 mm Hg. Systolic blood pressure (the top number) is the pressure created when the heart is contracted. Diastolic blood pressure (the bottom number) is the pressure



created when the heart is relaxed. Blood pressure can be increased when our heart beats faster and harder or if our blood vessels tighten, making a narrower opening for the blood to flow through.

What Causes Morning Blood Pressure?

Blood pressure increases when we first wake up due to the body's normal circadian rhythm. *Circadian rhythm* is a 24-hour cycle that affects our sleep/wake patterns. In the morning, the body releases hormones such as adrenaline and noradrenaline. These hormones give you boosts of energy but can also raise your blood pressure. The morning increase in blood pressure is usually seen between 6:00 AM and noon (Figure 1). If the blood pressure rises too high, it can cause harmful effects.

What Can Happen If I Have Morning Hypertension?

Patients with hypertension who specifically have morning hypertension have a higher risk of stroke, compared with other hypertensive patients without morning hypertension (Figure 2).

High blood pressure can cause a stroke, which is a sudden loss of brain function due to a lack of blood supply to the brain. Two types of stroke exist—*ischemic* or *hemorrhagic*. A stroke

Figure 1. Changes in Blood Pressure and Heart Rate in a 24-Hour Period

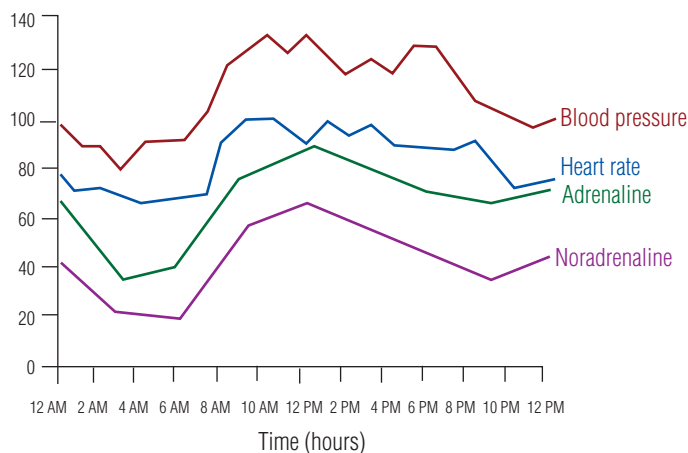
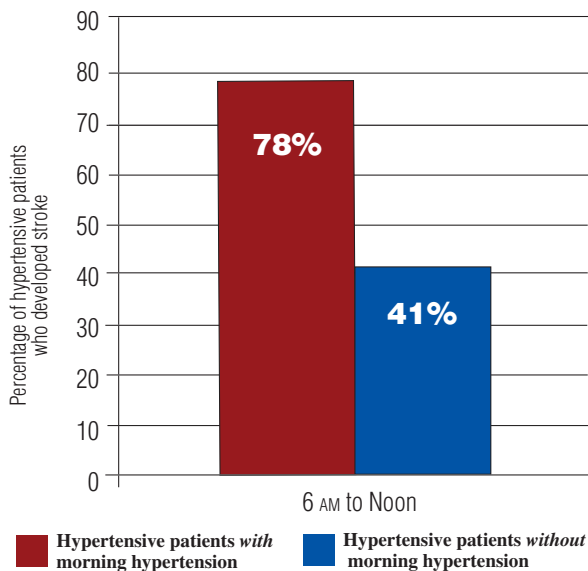


Figure 2. Stroke in Hypertensive Patients Relative to Morning Hypertension



caused by a blood clot is called an *ischemic stroke*. Ischemic strokes are the most common, causing 85% of the 600,000 strokes that occur each year. *Hemorrhagic strokes* occur when a blood vessel ruptures in the brain.

Morning hypertension also can increase your risk of other heart and blood vessel problems. It has been associated with changes in your heart's rhythm and size, which can lead to a heart attack or heart failure. Be sure to contact your doctor immediately if you experience symptoms such as severe headache, chest pain, and numbness or tingling in your face or arms.

Who Is at Risk for Morning Hypertension?

You may be at risk for harmful morning hypertension due to the following:

- High blood pressure
- Diabetes type 1 or type 2
- Being older than 65 years old
- Use of tobacco or alcohol
- Being overweight
- High cholesterol levels

How Do I Know If I Have Morning Hypertension?

Doctors recommend that patients monitor their blood pressure at home to help determine their risk of morning hypertension by using a home blood pressure monitor that has been clinically proven to be accurate. You can purchase a home blood pressure monitor without a prescription at your local pharmacy. Several


types of monitors are available, including automatic and manual models. The only home blood pressure monitors currently on the market cleared by the FDA to help determine a patient's risk of morning hypertension is manufactured by Omron Healthcare (Model HEM-780, HEM-775, and HEM-790IT). Omron automatic blood pressure monitors are clinically proven accurate and include IntelliSense for proper cuff inflation, memory capability, different cuff sizes, and an electronic display that includes the date and time.

When purchasing a home blood pressure monitor, be sure to select the proper cuff size that matches the distance around your upper arm. If an incorrect cuff size is used, this may cause a wrong blood pressure reading. You also should consider whether you want an automatic or manual inflation cuff with your monitor.

How Do I Use My Home Blood Pressure Monitor?

Your blood pressure should be checked in the morning, about an hour after you wake up, and in the evening, about an hour before you go to sleep, using the same arm each time. Taking 3 consecutive measurements (about 1 minute apart) will provide a more accurate understanding of your "true" blood pressure. Avoid food, caffeine, or tobacco at least 30 minutes before the measurement. Sit in a chair with your legs and ankles uncrossed and your back supported. Your arm should be at the same level as your heart and rested on a table or counter. Follow the user instructions included with your blood pressure monitor. Keep a log of all your blood pressure readings. Many of the Omron monitors have internal memory capability for recording your readings and the date and time. Bring the log to every doctor's appointment so that your doctor is aware of your home blood pressure readings. Your doctor may make changes in your medications based on your home blood pressure readings, which may include changing the time you take your medication or the type of medication.

What Can I Do to Prevent or Control Morning Hypertension?

A healthy lifestyle that includes a nutritious diet, avoidance of tobacco and alcohol, and regular physical activity will help to protect you from morning hypertension. If you take blood pressure medications, take them as your doctor has ordered, and keep a log of your home blood pressure readings. These steps may help to prevent heart or blood vessel problems such as stroke. For more information on morning hypertension, visit www.morningbp.com/pt1. 

This handout for patients will be available online at www.pharmacytimes.com.

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