PATIENT RESOURCES

Endocrine Related Hypertension

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Hypertension, or high blood pressure, is a leading cause of heart and blood vessel (**cardiovascular**) disease. Nearly half of the adults in the United States (about 116 million people) have high blood pressure.

There are two types of hypertension—primary (essential) and secondary. Most hypertension is the primary type. Its cause is unknown, but genetics and factors such as excessive salt intake, obesity, lack of exercise, and the use of tobacco and alcohol play a role. Primary hypertension is more common among African Americans and among older adults.

Secondary hypertension is due to medical conditions such as kidney disease and obstructive sleep apnea, as well as endocrine disorders such as primary aldosteronism, **Cushing's syndrome**, and pheochromocytoma. In addition, a number of prescription and over-the-counter medications, such as oral contraceptives, nonsteroidal inflammatory agents, steroids, and decongestants, can cause secondary hypertension.

Endocrine Connection

The endocrine system is a series of glands that secrete **hormones** that the body uses for a wide range of functions, including regulating blood pressure.

- **Adrenal glands**: If the adrenal glands make too much aldosterone, cortisol, or hormones similar to adrenaline, it can cause high blood pressure.
- **Thyroid gland**: High blood pressure can be caused by an underactive (hypothyroidism) or overactive (hyperthyroidism) thyroid gland.
- **Pituitary gland**: Sometimes problems with the adrenal glands and thyroid gland are due to problems with the pituitary gland. If the pituitary gland sends too much signal to the adrenal glands or thyroid gland, it can result in high blood pressure.
- **Parathyroid glands**: If the parathyroid glands make too much parathyroid hormone, it can cause high blood pressure.

- **Pancreas**: High blood pressure in adults with obesity may be partially due to elevated insulin levels and insulin resistance. Insulin is made in the pancreas.

Terms You Should Know

Blood Pressure: As blood flows through the body, it pushes against the walls of the arteries. The force of this push in the arteries is blood pressure. Measurement of blood pressure includes two readings, systolic and diastolic. An example is 120/80 mm Hg (millimeters of mercury).

Systolic Pressure: The top reading that measures the pressure in your arteries as the heart contracts.

Diastolic Pressure: The bottom reading measures the pressure in your arteries when the heart relaxes between beats.

Normal Blood Pressure: Systolic < 120 mm Hg and diastolic <80 mm Hg

Elevated Blood Pressure: Systolic 120 to 129 mm Hg and diastolic <80 mm Hg

Hypertension: Systolic >/= 130 mm Hg or diastolic >/= 80 mm Hg

Secondary Hypertension Causes

As mentioned above, secondary hypertension is due to a medical conditi
Below are some conditions that can affect your blood pressure:

Primary aldosteronism: Primary aldosteronism is due to the adrenal glands making too much of the hormone aldosterone. In addition to high blood pressure, it can cause low potassium levels in the blood (hypokalemia).

Pheochromocytoma: Pheochromocytoma is a rare cause of secondary hypertension caused when the body makes too much of hormones similar to adrenaline. In addition to high blood pressure, pheochromocytomas can present with episodes of headache, sweating, and a racing heartbeat.

Cushing's syndrome: Cushing's syndrome is another rare cause of secondary hypertension caused when the adrenal glands make too much of the hormone cortisol. In addition to high blood pressure, it can present with weight gain in the trunk, muscle weakness, and purple stretch marks.

Thyroid problems: Both low thyroid hormone levels (hypothyroidism) and high thyroid hormone levels (**hyperthyroidism**) can cause high blood pressure. Hypothyroidism typically elevates the diastolic pressure more than the systolic pressure, whereas hyperthyroidism typically elevates the systolic pressure more than the diastolic pressure. Other symptoms of hypothyroidism include fatigue, feeling cold all the time, weight gain, constipation, hair loss, and dry skin. Other symptoms of hyperthyroidism include feeling hot all the time, tremors, racing heartbeat, and weight loss.

Primary hyperparathyroidism: Primary hyperparathyroidism is caused when the parathyroid glands make too much parathyroid hormone, which results in elevated blood calcium levels. In addition to high blood pressur it can also cause kidney stones, nausea, constipation, and excessive thirst

and urination.

Obesity: High blood pressure is very common in adults who are overweight or obese.

Diagnosis and Prevention

Blood pressure can be measured both at the doctor's office and at home. In addition, sometimes a doctor might order a 24-hour blood pressure monitor that can be worn at home. After a hypertension diagnosis, you should discuss with your doctor whether they think you have primary or secondary hypertension, as this will affect the diagnostic tests that are done.

After a diagnosis of hypertension, you should have regular blood pressure checks to see how well your treatment is working. The goal is typically to lower your systolic blood pressure to less than 130 mm Hg and your diastolic blood pressure to less than 80 mm Hg. However, depending on your health and medical conditions, your doctor may have a different blood pressure goal for you. Your doctor can help guide your treatment goals based on your risk factors.

It is best to monitor your blood pressure at home and bring a written record to the doctor at each visit. This information can help in adjusting the medication dose, if needed, and making treatment effective.

You can prevent hypertension by making the following lifestyle changes:

- Keep a healthy weight [(body mass index, or BMI, of 18.5 to 24.9 kg/m2)]

- Reduce the amount of saturated and total fat in your diet. Eat lots of fruits and vegetables, and choose low-fat dairy products.
- Reduce salt (sodium) in your diet
- Exercise (such as brisk walking) at least 30 minutes a day, most days of the week
- Limit alcohol intake (men: no more than two drinks a day; women and lightweight men: no more than one drink a day)
- Quit smoking

Symptoms and Risk Factors

Since people with hypertension often have no symptoms, it has been called "the silent killer." While hypertension often does not have symptoms, without treatment, it can lead to many life-threatening complications. Long term complications of hypertension include:

- Heart attack
- Heart failure
- Stroke
- Kidney failure

In addition, an acute elevation in blood pressure to >180/120 mm Hg can acutely cause a heart attack, stroke, brain bleed, rupture of the large blood vessel from the heart (aorta), and/or kidney damage. Since these complications are life-threatening, call 9-1-1 if you are having new severe symptoms such as the following: headache, chest pain, shortness of breath, back pain, vision changes, or symptoms of a stroke such as trouble talkir arm or leg weakness, or facial droop.

Risk factors for hypertension include the following:

- Family history
- Overweight/obesity
- Lack of exercise
- High salt diet
- Alcohol use
- Smoking
- History of pituitary, thyroid, parathyroid, or adrenal problems

▸ Treatment and Therapies

Although there is no cure for primary hypertension, it usually can be controlled. Doctors often prescribe a combination of medication and lifestyle changes. It is very important to take the medication(s) exactly as prescribed on a daily basis. Missed doses can increase blood pressure and the risk of heart attack or stroke.

In terms of secondary hypertension, treatment of obstructive sleep apnea and kidney disease is important to improve blood pressure and lower the risk of heart attack and stroke. For patients with endocrine-related hypertension, surgery or medications that affect specific hormones in the body can greatly improve or even cure secondary hypertension.

The same lifestyle changes that can prevent hypertension are also very important in the treatment of hypertension:

- Keep a healthy weight [(body mass index, or BMI, of 18.5 to 24.9 kg/m2)].

- Reduce the amount of saturated and total fat in your diet. Eat lots of fruits and vegetables, and choose low-fat dairy products.
- Reduce salt (sodium) in your diet.
- Exercise (such as brisk walking) at least 30 minutes a day, most days of the week.
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Source: National High Blood Pressure Education Program (NHLBI/NIH/DHHS)

Questions For Your Healthcare Provider

- What is the cause of my high blood pressure?
- How can I lower my high blood pressure?
- Should I measure my blood pressure at home, and how often?
- Will I need medicine to lower blood pressure?
- How long will I need to take blood pressure medicine?
- What are the side effects of the drug you have prescribed to lower my blood pressure?
- What are my blood pressure goals?