

# ANTIHYPERTENSIVE DRUGS

Blood pressure is the force exerted by the blood against the walls of the arteries. Two measurements are taken: one indicates force while the heart's ventricles are contracting (systolic pressure). This reading is a higher figure than the other one, which measures the blood pressure during ventricle relaxation (diastolic pressure). Blood pressure varies among individuals and normally increases with age. If a person's blood pressure is higher than normal on at least three separate occasions, a doctor may diagnose the condition as hypertension.

Blood pressure may be elevated as a result of an underlying disorder, which the doctor will try to identify. Usually, however, it is not possible to determine a cause. This condition is referred to as essential hypertension.

Although hypertension does not usually cause any symptoms, severely raised blood pressure may produce headaches, palpitations, and general feelings of ill-health. It is important to

reduce high blood pressure because it can have serious consequences, including stroke, heart attack, heart failure, and kidney damage. Certain groups are particularly at risk from high blood pressure. These risk groups include diabetics, smokers, people with pre-existing heart damage, and those whose blood contains a high level of fat. High blood pressure is more common among black people than among whites, and in countries, such as Japan, where the diet is high in salt.

A small reduction in blood pressure may be brought about by reducing weight, exercising regularly, and avoiding an excessive amount of salt in the diet. But for more severely raised blood pressure, one or more antihypertensive drugs may be prescribed. Several classes of drugs have antihypertensive properties, including the centrally acting antihypertensives, diuretics (p.57), beta blockers (p.55), calcium channel blockers (p.59), ACE (angiotensin-converting enzyme) inhibitors (p.56), and alpha blockers. See also Vasodilators, p.56.

## Why they are used

Antihypertensive drugs are prescribed when diet, exercise, and other simple remedies have not brought about an adequate reduction in blood pressure, and your doctor sees a risk of serious consequences if the condition is not treated. These drugs do not cure hypertension and have to be taken indefinitely.

## How they work

Blood pressure depends not only on the force with which the heart pumps blood, but also on the diameter of blood vessels and volume of blood in circulation: blood pressure is increased either if the vessels are narrow or if the volume of blood is high. Antihypertensives lower blood pressure either by dilating the blood vessels or by reducing blood volume. Antihypertensive drugs work in different ways and some have more than one action (see Action of antihypertensive drugs, left).

## Choice of drug

Drug treatment depends on the severity of the hypertension. At the beginning of treatment for mild or moderately high blood pressure, a single drug is used. A thiazide diuretic is often chosen for initial treatment, but it is also increasingly common to use a calcium channel blocker or an ACE inhibitor. For those over 50 or of Afro-Caribbean descent, a calcium channel blocker is usually the first-line treatment. If a single drug does not reduce the blood pressure sufficiently, a combination of these drugs may be used. Some people who have moderate hypertension require an

additional drug, in which case an alpha blocker or beta blocker may also be prescribed.

Severe hypertension is usually controlled with a combination of several drugs, which may need to be given in high doses. Your doctor may need to try a number of drugs before finding a combination that controls blood pressure without unacceptable side effects.

## How they affect you

Treatment with antihypertensive drugs relieves symptoms such as headache and palpitations. However, since most people with hypertension have few, if any, symptoms, side effects may be more noticeable than any immediate beneficial effect. Some antihypertensive drugs may cause dizziness and fainting at the start of treatment because they can sometimes cause an excessive fall in blood pressure. It may take a while for your doctor to determine a dosage that avoids such effects. For detailed information on the adverse effects of drugs used to treat hypertension, consult the individual drug profiles in Part 3.

## Risks and special precautions

Because your doctor needs to know exactly how treatment with a particular drug affects your hypertension – the benefits as well as the side effects – it is important for you to keep using the antihypertensive medication as prescribed, even though you may feel the problem is under control. Sudden withdrawal of some of these drugs may cause a potentially dangerous rebound increase in blood pressure. To stop treatment, the dose needs to be reduced gradually under medical supervision.

## COMMON DRUGS

<b>ACE inhibitors</b> (see p.56)	Nifedipine * Verapamil *
<b>Angiotensin II blockers</b> Candesartan * Irbesartan * Losartan * Olmesartan	<b>Centrally acting antihypertensives</b> Clonidine Methyldopa Moxonidine *
<b>Beta blockers</b> (see p.55)	<b>Diuretics</b> (see p.57)
<b>Calcium channel blockers</b> (see p.59) Amlodipine * Diltiazem * Felodipine * Isradipine Lacipidine Lercanidipine Nicardipine	<b>Alpha blockers</b> Doxazosin * Indoramin Prazosin Terazosin
	<b>Vasodilators</b> (see p.56)

\* See Part 3

## ACTION OF ANTI-HYPERTENSIVE DRUGS

Each type of antihypertensive drug acts on a different part of the body to lower blood pressure.

