

not based on fact. There is no reason for anyone to feel that because he is getting along in years he must be getting high blood pressure.

What then is the cause of high blood pressure? Sometimes it occurs with other diseases, such as kidney trouble or disturbances of the endocrine glands. In these cases, when the disease is cured, usually the hypertension is, too. When the cause is unknown, as it is in the majority of cases, the condition is called *essential hypertension*. It seems to run in families and occur more often among people who are overweight.

To gain an understanding of high blood pressure, it is first necessary to know the meaning of "blood pressure" — which is simply the pressure of the blood against the walls of the arteries. Everyone has blood pressure, and everyone's pressure goes up and down. It is highest during systole — the period when the heart pumps a fresh load of blood into the elastic-walled arteries which stretch to accommodate it — and lowest during diastole — the period when the heart pauses between beats to fill with blood. High blood pressure is commonly taken to mean high *systolic* pressure. However, the *diastolic* pressure is the more important of the two, as it represents the basic pressure exerted on the arterial walls independent of the additional pressure due to the contraction of the heart.

Another factor that makes everyone's blood pressure normally rise and fall is the behavior of the arterioles (the smallest branches of the arteries). The arterioles are controlled by nerves which make them constrict (tighten up) when you are all keyed up with joy, fear, anger, or worry. When they constrict, less blood can get into them from the arteries, and so the pressure of the blood in the arteries goes up. The arterioles dilate (open wider) when the excitement is over, and the pressure goes down.

The functioning of the nervous system is not the only cause of constricted arterioles. It is generally accepted by

physicians that certain chemical substances set free into the blood stream from various body organs and glands can also cause the arterioles to thicken or narrow. Why this happens in some people and not in others, what the relationship is between these substances and the influence of the nervous system, and why some people have a more sensitive nervous system than others are all questions that scientists are seeking to answer. They are important questions, because high blood pressure means simply that some influence keeps the arterioles of the body in a more or less constantly constricted or tightened-up state.

The effect of hypertension on the heart is what you might expect if you screwed down the nozzle of a hose connected with a water pump. Just as the pump would have to work harder to increase the pressure in the hose to keep water spraying out of the nozzle in the same volume as before, so the heart must work harder, though not necessarily more rapidly, and the pressure in the arteries must increase to keep the blood flowing through the constricted arterioles at nearly the normal rate. To take care of this extra work, the heart muscle is forced to enlarge (the first step in the development of hypertensive heart disease). And often, but not always, the walls of the arteries become scarred, thickened, and lose their elasticity — a process called sclerosis, or hardening, of the arteries (arteriosclerosis).

The blood vessels of the heart, brain, and kidneys are particularly susceptible to hardening associated with *persistent* high blood pressure. When the blood vessels of the brain are involved, what is known as a "stroke" may occur — that is, a small artery may rupture or be closed by a blood clot.

In some cases of hypertension there may be no symptoms at all; in others there may be headaches, dizziness, fatigue, flushing, or general aches and pains. If you have any of these symptoms, you should certainly see a doctor.