

## **Prevention of stroke**

A stroke occurs when one is struck down by the interruption of blood flow to a part of the brain. The effect is usually a recognisable disturbance of function of the brain. It may be a form of paralysis, loss of balance, loss of vision, loss of sensation, loss of localised muscle strength or other disturbances of function, sensation or thought. The onset of the stroke is usually abrupt. In some people it may develop gradually or in steps.

There are three basic types of stroke. The most common is due to a blood clot developing inside one of the arteries supplying blood to the brain (a cerebral arterial thrombosis). This thrombosis may be superimposed on a plaque in a major artery (the internal carotid artery), on either the left or right side, or one of the branches. A cholesterol-containing plaque develops slowly over years. When found to be present, the threat of stroke is raised.

To prevent a major stroke, three approaches are possible - carotid endarterectomy to remove the plaque, angioplasty to open the artery, medical treatment to prevent clotting on the plaque, and control of the background risk factors for the development of such a plaque. These approaches are essentially the same as for coronary heart disease, because the underlying causes are the same.

If the blood clot is in a smaller artery, prevention of further clot development is usually by reduction of risk factors, without major surgical intervention. That means cessation of smoking, control of obesity, increased physical activity, lowering the blood cholesterol level, dietary changes and control of diabetes. One does not wait for a stroke to appear before initiating these measures. The prevention of stroke is the same as the prevention of heart attacks and other complications of "cardiovascular disease" (disease of the heart and blood vessels). It is now accepted that life

expectancy and quality of life are much enhanced by these measures. Sadly not all of us can maintain this type of healthy lifestyle. The temptation is to accept a life of "physical indolence, gluttony and non-compliance" (the words are not mine). The statement is unfair because the greatest risks of stroke are through smoking and high blood pressure.

The second major type of stroke is an intracerebral haemorrhage (bleeding into the brain). This is not uncommon amongst those who have uncontrolled long-standing high blood pressure. Such haemorrhage may be small, due to weakness in the wall of a small artery. The bleeding may do little recognisable damage to the brain or may occur in an area where great functional damage occurs. Worse still is a large cerebral haemorrhage with destruction of much of the brain and potentially fatal outcome. Cerebral haemorrhage can be prevented or chances of such a stroke reduced by control of blood pressure. We should all know if our blood pressure is raised or not. If raised, medication can control it. Blood pressure control can markedly reduce the chances of a cerebral haemorrhage and also of a cerebral thrombosis or a heart attack.

The third major type of stroke is referred to as cerebral arterial embolism. This is due to interference of brain function from lodgement of a clot in a cerebral artery, that clots having been carried from elsewhere to the brain. Such travelling clots may have formed in the left ventricle in the heart (the pressure pumping chamber). Embolism may occur in those who have recently had a heart attack, or had one some time ago and are left with a part of the left ventricle wall not contracting and thereby enabling blood clot to form. Clot may occur in the left atrium, the receiving entry chamber of the heart, into which blood flows from the lungs. Left atrial clot may arise in those people with heart failure, in whom the left atrium becomes significantly enlarged.

In some cases, clots may form on the heart valves or in the aorta (the main artery into which blood is pumped from the left ventricle). From any of these sites, pieces of clots may be dislodged and end up in any small arteries. They may be prevented by

regular daily small doses of aspirin. In some cases anti-coagulant drugs (such as Warfarin) are required to prevent clotting. A minor temporary episode of stroke may occur, with recovery of function usually within minutes. These episodes are usually referred to as transient ischaemic attacks (TIAs).

We come back to the basic principle of personal health care - "prevention is better than cure". Prevention is largely a matter of personal responsibility. Cure is difficult or may not be possible. Sadly many of us seem unconcerned until it is too late.

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