

Cardiovascular disease, heart attack and stroke

Many people have difficulty in understanding the relationship between these conditions. This discussion explains their differences and their close relationships. Cardiovascular disease is an all-embracing term to cover all aspects of disease of the heart and blood vessels. As we age and as we expose ourselves to the effects of one or more risk factors (high blood pressure, high cholesterol, smoking, physical inactivity, obesity and diabetes), changes occur in our arteries. These arteries are the conduits through which blood is transported under pressure from the heart to all parts of the body. The artery walls thicken with time, cholesterol is deposited in the artery walls and blood clotting may occur on the cholesterol-containing plaques.

We have now set the stage for a cardiovascular event. The most common major cardiovascular event is a heart attack; the second is a stroke. There are other possible cardiovascular events.

Heart attack

The change that leads to a heart attack is the clotting up and blockage in a major coronary artery (coronary occlusion), which carries the blood to the heart muscle. The blockage deprives a part of the heart muscle of blood and, in consequence, heart muscle is damaged or dies (acute coronary syndrome or acute myocardial infarction).

Stroke

The same process (as with a heart attack) can occur in the arteries carrying blood to the brain. If there is a plaque or cholesterol deposit in one of the main arteries in the neck (common carotid artery or internal carotid artery), ulceration may occur on its surface. This may lead to pieces of cholesterol or blood clot coming free and passing up into the brain. That leads to death or damage of brain cells and consequent disturbance of movement, strength, sensation or other function. This is a thrombotic or embolic stroke. Such strokes may also arise from plaques in the main artery from the heart (the aorta), or from the outlet valve from the heart (the aortic valve), where roughening and thrombotic lumps may develop. Blockage may also arise in small arteries within the brain. With these events the outcome depends upon which functions are affected, based on the specific site of the occluded artery. Thrombotic or embolic strokes are usually small; hence recovery (complete or partial) commonly occurs.

Medication after stroke

Thrombotic or embolic strokes are managed by blood pressure control, cholesterol control, being a non-smoker and attending to weight, activity and control of diabetes if needed.

These measures markedly reduce the risks of another episode. Also important for such patients is that thereafter they take a daily small dose of aspirin. All of this is similar to the treatment after a heart attack; both heart attack and stroke are manifestations of cardiovascular disease.

Aspirin as treatment

Aspirin prevents platelets in the blood from sticking together. That reduction in platelet stickiness reduces the chances of blood clotting within the

arteries. Thus, aspirin markedly reduces the chance of another stroke, but it carries a small risk of bleeding, including bleeding into the brain. Sometimes, under special circumstances, new anti-thrombotic drugs are added to support the effect of aspirin. Further, in some instances, an anticoagulant (warfarin) is added. The risk of a major haemorrhagic stroke may thereby be much increased. By taking these drugs to prevent thrombosis, the patient is taking a cocktail which can occasionally induce bleeding into the brain with devastating effect. Usually, however, a major cerebral haemorrhage occurs in the absence of anti-thrombotic medication. A blood vessel may rupture, leading to destruction of brain tissue, particularly in those with untreated or inadequately treated high blood pressure.

Rehabilitation

Whether large or small, the effects of strokes are addressed by comprehensive rehabilitation programs, directed toward recovery of strength, movement and assistance in modifying or re-learning activities of daily living to achieve the best function for the future.

Some disability may persist after a stroke of any size. The kind of disability experienced depends on the particular part of the brain which has been affected by the stroke. There may be memory loss, difficulty with speech and communication, weakness or residual paralysis, or other problems. Disability may lead to frustration and psychological change, commonly with development of depressed mood. All of these effects need to be addressed in comprehensive rehabilitation and care after a stroke. Not only the sufferer of the stroke may require support; a stroke in one member of a family may affect the whole family.

How do you prevent having a stroke?

You can prevent stroke in the same way as you can prevent having a heart attack - by attention to the risk factors for the prevention of cardiovascular disease referred to above.

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