Stroke

Stroke is a disease due to damage in the blood vessels that take blood to the brain. A stroke occurs when an artery that takes oxygen and nutrients to the brain ruptures or is blocked (generally due to a clot). Due to this rupture or blockage, part of the brain does not receive the blood and oxygen that it needs. In not having oxygen, the neurons (nerve cells) in the affected area die in a few minutes. When the neurons die, the part of the body that they control stops working. The effects of a stroke are often permanent because the dead brain cells cannot be recovered and are not replaced by other cells. There are two types of strokes: ischemic (cerebral embolism) and hemorrhagic (cerebral hemorrhage or blood loss).

Ischemic stroke or cerebral embolism

Ischemic stroke is the most common type of stroke and accounts for 80 per cent of all cases. It is due to the tamponage of a blood vessel. It happens when a clot forms and blocks the flow of blood in an artery that takes blood to a part of the brain. Blood clots generally form when an artery is deteriorated due to the formation of fatty deposits within its walls, which is called atherosclerosis. A blood clot can form in the blood vessels that take blood to the brain due to the plaque blockage caused by the abnormal blood flow around the plaque. When this happens, it is called cerebral thrombosis. They can also form in other blood vessels that are not in the brain. If these clots break off and circulate through the blood, they can remain lodged or stuck in smaller blood vessels in their path, where the blood vessels are too small for them to pass. If the clot remains lodged in a blood vessel that takes blood to a part of the brain, a stroke is caused. This type of stroke is called cerebral embolism. Another place where clots can form is in the heart. This generally happens when the heart beats irregularly. The most common type of irregular heartbeat that causes this is called atrial fibrillation. In this heart problem, the atria (which are the upper chambers of the heart) do not beat regularly but fibrillate or "tremble" irregularly, which causes blood to build up and increases the risk of clots forming. These clots can break off and travel to the brain and cause a cerebral embolism, one type of stroke.

Thrombotic strokes (strokes caused by blood clots) often occur at night or early in the morning. Some thrombotic strokes tend to be preceded by a transitory ischemic attack. This is also known as AIT (TIA, in English) or "warning attack." This condition causes some of the same symptoms as a stroke but these are resolved within 24 hours. Patients who suffered a TIA are at great risk of having a stroke and must be evaluated by a doctor immediately.

Hemorrhagic stroke or cerebral hemorrhage

A hemorrhagic stroke (a stroke due to a hemorrhage in the brain) happens when a blood vessel that takes blood to part of the brain bursts. Hemorrhagic strokes have a much higher death rate than those caused by clots. There are two main causes of hemorrhagic stroke. Subarachnoid hemorrhages occur when a blood vessel on the surface of the brain bursts and bleeds within the space between the brain and the cranium. Cerebral hemorrhages occur when an artery in the brain bursts, allowing the blood to flow to the surrounding tissue. It can also be due to the rupturing of an aneurysm in one of the blood vessels inside the brain. Aneurysms are caused when there are weakened areas in an artery wall. The part where the artery wall is thinner and therefore weaker dilates like an inflated balloon. High blood pressure can worsen this problem. Aneurysms are not always dangerous, but if they are big enough, they are at risk of bursting. If an aneurism bursts in the brain, it causes a hemorrhagic stroke. When a cerebral hemorrhage occurs, the blood does not irrigate part of the brain and the cells do not receive the oxygen they need. The hemorrhage can increase the pressure in the surrounding brain tissue, which can interfere with the way in which the brain works. Serious or mild symptoms can occur, depending on the amount of pressure. The amount of blood lost will determine the seriousness of the symptoms and the amount of pressure on the surrounding brain tissue. In many cases, people who suffer cerebral hemorrhages die as a result of the increase in pressure in the brain. Patients who survive tend to recover better than those who had strokes caused by a clot. This is due to the fact that when a clot blocks a blood vessel, part of the brain dies, and the brain does not regenerate. When a blood vessel in the brain bursts, the pressure of the blood compresses part of the brain but some blood keeps flowing. If some blood keeps flowing, the brain tissue can survive and permanent damage may not occur. If the person survives, the pressure gradually returns to normal. When this occurs, the brain can recover some of its previous functionality.