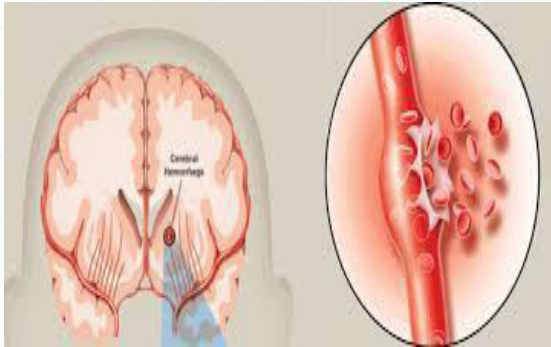


Stroke



A stroke is a brain attack which can happen to anyone at any time. It happens when the blood flow to an area is cut off. Then brain cells are deprived of oxygen and begin to die. And thus the abilities controlled by that area of that brain like memory and muscle control are lost. So in short, Stroke occurs when the supply of blood to the brain is either interrupted or

reduced.

How a person is affected by stroke depends on where the stroke occurs in the brain and how much brain is damaged. People who have permanent stroke may be paralyzed on one side of their body or lose their ability to speak.

Causes

The different forms of stroke have different specific causes.

Ischemic strokes

Ischemic strokes are the most common form of stroke, with around 85% of strokes being of this type. They are caused by the arteries that connect to the brain becoming blocked or narrowed, resulting in ischemia - severely reduced blood flow. These blockages are often caused by blood clots, which can form either in the arteries connecting to the brain, or further away before being swept through the bloodstream and into narrower arteries within the brain. Clots can be caused by fatty deposits within the arteries called plaque.

Hemorrhagic strokes

Hemorrhagic strokes are caused by arteries in the brain either leaking blood or bursting open. The hemorrhaged blood puts pressure on brain cells and damages them. Blood vessels can burst or spill blood in the middle of the brain or near the surface of the brain, sending blood into the space between the brain and the skull. The ruptures can be caused by conditions such as hypertension, trauma, blood-thinning medications and weakness in blood vessel walls.

Transient ischemic attack(TIA)

TIA's are different from the aforementioned kinds of stroke because the flow of blood to the brain is only disrupted temporarily for a short time. They are similar to ischemic strokes in

that they are often caused by blood clots or other debris. TIAs should be regarded as medical emergencies just like the other kinds of stroke, even if the blockage of the artery is temporary. They serve as warning signs for future strokes and indicate that there is a partially blocked artery or clot source in the heart. According to the Centers for Disease Control and Prevention (CDC), over a third of people who experience a TIA go on to have a major stroke within a year if they have not received any treatment. Between 10-15% will have a major stroke within 3 months.

Symptoms

Strokes occur quickly, and as such their symptoms often appear suddenly without warning. The main symptoms are as follows:

- Confusion, including trouble with speaking and understanding
- Headache, possibly with altered consciousness or vomiting
- Numbness of the face, arm or leg, particularly on one side of the body
- Trouble with seeing, in one or both eyes
- Trouble with walking, including dizziness and lack of co-ordination.

Strokes can lead to long-term problems. Depending on how quickly it is diagnosed and treated, the patient can experience temporary or permanent disabilities in the aftermath of a stroke. In addition to the problems listed above continuing, patients may also experience the following:

- Bladder or bowel control problems
- Depression, Pain in the hands and feet that gets worse with movement and temperature change
- Paralysis or weakness on one or both sides of the body
- Trouble controlling or expressing emotions

Diagnosis

There are different methods by which stroke can be diagnosed.

- Physical examination: a doctor will ask about the patient's symptoms and medical history. They may check blood pressure, listen to the carotid arteries in the neck and examine the blood vessels at the back of the eyes, all to check for indications of clotting.
- Blood tests: a doctor may perform blood tests in order to find out how quickly the patient's blood clots, what the levels of chemicals within it are like and whether or not the patient has an infection.

- CT scan: a series of X-rays that can show hemorrhages, strokes, tumors and other conditions within the brain
- MRI Scan : radio waves and magnets create an image of the brain to detect damaged brain tissue
- Carotid ultrasound: an ultrasound scan to check the blood flow of the carotid arteries and to see if there is any plaque present
- Cerebral angiogram: dyes are injected into the brain's blood vessels to make them visible under X-ray, in order to give a detailed view of the brain and neck arteries
- Echocardiogram: a detailed image of the heart is created to check for any sources of clots that could have traveled to the brain to cause a stroke.

Treatment

As the two main different kinds of stroke, ischemic and hemorrhagic, are caused by different factors, both require different forms of treatment. It is particularly important that the type of stroke is diagnosed quickly, not just to reduce the damage done to the brain but because treatment for one kind of stroke may be harmful to someone who has had a different kind.

- Ischemic strokes are caused by arteries being blocked or narrowed and so treatment focuses on restoring an adequate flow of blood to the brain. Treatment can begin with drugs to break down clots and prevent further ones from forming. Aspirin can be given, as can an injection of a tissue plasminogen activator (TPA). TPA is very effective at dissolving clots but needs to be injected within 4.5 hours of stroke symptoms manifesting themselves. Emergency procedures include administering TPA via catheter directly into an artery in the brain or using a catheter to physically remove the clot from its obstructive position. Recent studies have cast doubt as to the effectiveness of these methods, and so research is still ongoing as to how beneficial these procedures are.

There are other procedures that can be carried out to decrease the risk of future strokes or TIAs. A carotid endarterectomy involves a surgeon opening the carotid artery and removing any plaque that might be blocking it.

Alternatively, an angioplasty involves a surgeon inflating a small balloon in a narrowed artery via catheter and then inserting a stent (a mesh tube) into the opening in order to prevent the artery from narrowing again.

- Hemorrhagic strokes are caused by bleeding into the brain and so treatment focuses on controlling the bleeding and reducing the pressure on the brain that it is causing. Treatment can begin with drugs being given to reduce the pressure in the brain, overall blood pressure, prevent seizures and prevent sudden constrictions of blood vessels. If the patient is taking anti-coagulant or anti-platelet medication like Warfarin or Clopidogrel, they can be given drugs or blood transfusions to counter the medication's effects.

Surgery can be used to repair any problems with blood vessels that have led or could lead to hemorrhagic strokes. Surgeons can place small clamps at the base of aneurysms or fill them with detachable coils to stop blood flow to them and prevent rupture.

Reference

1. Stroke: Causes, Symptoms, Diagnosis and treatment, available at: <http://www.medicalnewstoday.com/articles/7624.php> (accessed on june 4,2015).
2. National stroke association, available at : <http://www.stroke.org/understand-stroke/what-stroke> (accessed on 4 june, 2015).