

# STROKE (BRAIN ATTACK)

This is the first of three articles on stroke. The aim is to explain the disease, the recovery path and prevention.

**Stroke is a serious illness of sudden onset and devastating consequence to the individual and the family unit. It is the third commonest cause of death in the western world and a major cause of disability with deterioration in the quality of life, loss of independence and increasing stress to patients and carers. Although more common in old age it is important to note that about a quarter of patients are under 65yrs.**

**The stroke inpatient care systems and outpatient services have undergone major developments in recent years across the United Kingdom. Our attitude to stroke has changed as we have the means to predict risks, take preventive measures, recognise early signs and make precise diagnosis.**

## What is stroke and what causes it?

Stroke is not a single entity; it has a broad variety of causes with different treatments. Each patient is unique but the ultimate outcome is sudden illness resulting when the blood vessels supplying an area of the brain get blocked or bleed.

Our brains need oxygen and nutrients to survive and perform their function. The blood supply is continuously provided by the pumping action of the heart into the major arteries. The blood flows into smaller arteries all the way up to the head, ending in a network of tiny blood vessels called capillaries that deliver oxygen and nourishment to millions of brain cells.

## Stroke as a result of blocked artery

This is the commonest cause of stroke, responsible for 80% of cases.

The blockage can be the result of a blood clot that builds up inside the brain vessels, or the arteries in the neck. Clots form on the inner lining of the arteries as a result of hardening or furring with deposits of fatty materials building up over time. Sometimes there is an internal tear in the lining itself. A clot may also form further away from

the brain inside the heart or large vessels; it then breaks off and flows up all the way to the smaller brain vessels where it gets trapped acting as a plug stopping the blood flow.

## Strokes due to a bleed in the brain

This is called a haemorrhagic stroke, where a blood vessel in the brain suddenly ruptures and the blood is released. The damage to delicate brain tissue can be considerable as the blood accumulates and pressure builds up as a result.

This process happens when the blood vessels are damaged by furring and high-uncontrolled blood pressure. It can also result when the arterial wall is stretched forming a bulge, like a little sac with thinner walls with little resistance to pressure and increased tendency to rupture.

Bleeding can also occur when there is an abnormal communication between the arteries and veins within the brain forming a thin network or mesh of vessels.

## How to recognise stroke

Detecting early signs of stroke is crucial for giving treatment at the right time and improving chances for recovery.

Sudden weakness in a limb, weakness and drooping in the face could be the first signs, plus difficulty and slurring of speech, loss of sight especially in an eye, loss of balance with severe dizziness and loss of coordination. Patients may be acutely confused, suffer severe unexplained headache or have difficulty understanding.

It is important to make note of the time symptoms start, as this will influence treatment decisions later.

## Tests done in acute stroke

The immediate tests done are in the Radiology Department in hospital to establish the extent of the stroke and are invaluable aids to diagnosis and planning correct treatment.

## CAT or CT Scan

A special type of x ray technique that results in a detailed image of the brain will show if there was a stroke, the area of the brain affected, the extent of the damage and if there was a haemorrhage and its location.

## MRI Scan

Another form of imaging using magnetic field and magnetic frequencies to form a detailed outline of the brain and blood vessels.

## Carotid flow studies

These may be done in the Vascular Laboratory in hospital using high frequency sound waves to identify areas of narrowing in the carotid arteries in the neck and approximate obstruction to the blood flow.

## Stroke Units

A stroke unit is a hospital ward dedicated for stroke care. It has high dependency beds with close monitoring facilities for acutely ill stroke patients and is staffed by specialist nursing teams, specialist

therapists (physiotherapists, speech therapists), nutritionists, pharmacists, social workers and clinical psychologists. Patients are admitted under the care of the Stroke Physician and the medical team covering the Unit supervises their progress.

It is essential throughout the process of care that communication with patient and family is maintained. The treatment plan should be fully explained and the patient aware what is being done at every step.

Stroke Units have proved to be crucial in reducing mortality and disability in stroke. Their services are assessed regularly by a national audit conducted by the Royal College of Physicians where every aspect of the service is examined and the results are published.

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