

**Hypertension:** High blood pressure is the most important risk factor for both ischemic and hemorrhagic strokes, increasing the odds of developing a stroke by two to four times even in younger individuals.

**Altered Cholesterol Levels:** High LDL cholesterol (bad cholesterol) and low HDL cholesterol (good cholesterol)

**Diabetes Mellitus:** Diabetes mellitus is associated with an increased tendency for changes in the arterial wall called atherosclerosis and is an acknowledged risk factor for both strokes and heart attacks.

**Smoking:** Smoking is associated with Strokes, especially in younger people. The risk of ischemic stroke and subarachnoid haemorrhage is increased with smoking.

**Heart Disease:** The presence of certain heart problems like atrial fibrillation, valvular heart disease, artificial heart valves, heart failure and dilated and poorly functioning heart can predispose a person to stroke.

**Obesity and physical inactivity:** Increase in body weight measured as high body mass index and high abdominal circumference are factors predisposing to vascular diseases as well as hypertension, diabetes and dyslipidemia.

**Family history:** Blood relatives of persons with history of stroke or heart attack at a young age at a higher risk of developing events themselves.

**Rare predispositions:** Some rare conditions known to increase risk of a stroke include hormone therapy in females, excessive alcohol consumption, hypercoagulable states, and obstructive

## 15 Required life-style modification to reduce the risk of Stroke?

- Have your BP checked regularly
- Keep your weight within a healthy range for your age and gender
- Try to get at least 30 minutes of light-to-moderate exercise for 5-6 days a week
- Quit smoking
- Cut down on alcohol
- Eat healthy
- Maintain an active lifestyle

Dr. Rela Institute & Medical Centre is a multi-specialty quaternary care hospital located in Chennai, India.

The Institute is within the campus of Sri Balaji Medical College and University, which is spread across 30 acres. It has 13 operating theatres with 450 beds, inclusive of 150 critical care beds.

The Institute is conveniently located 10 minutes from the Domestic and International Airport.

The hospital is designed to provide highly specialized care in various departments with a focus on multi-organ transplantation. Prof. Dr. Mohammed Rela, a world renowned surgeon in the field of Liver surgery and transplantation is the Chairman and Managing Director of the Institute.

In addition to quaternary & quality care, is also committed to provide day to day primary and secondary care to the local population, with facilities of international standards.

The Institute would provide comprehensive support to international patients travelling for medical treatment such as language assistance, stay, visa and travel.

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**DR. RELA INSTITUTE & MEDICAL CENTRE**  
An International Medical Facility



Department of  
Neurology

**STROKE**



# STROKE

## 1 What is a stroke?

- Stroke or brain attack results from a sudden block or rupture of one of the arteries supplying blood to the brain
- Stroke is a medical emergency
- Time is the essence, as for every minute of delay in obtaining the treatment, twenty lakh brain cells are irreversibly lost
- With passing of each hour of untreated stroke, brain ages by 3.6 years
- Remember, "Time is Brain"

## 2 What is the social impact of Stroke?

- Stroke is a leading cause of death and disability in the world.
- It is the second most common cause of death and is the leading cause of disability among adults worldwide.
- About 20 to 25% of patients succumb to stroke and 15 to 30% of survivors are permanently disabled.

## 3 Stroke statistics in India

- Approximately, 15 lakh people are struck with stroke every year in India.
- Prevalence is 55.6 per 100,000 across all age groups
- 6.3 lakh deaths occur every year due to stroke
- 12% of strokes occur in the population aged < 40 years.

## 4 Types of stroke?

- Stroke is mainly of two types- Ischemic stroke, hemorrhagic stroke and embolic stroke
- Most of all strokes are ischemic

## 5 What is Ischemic Stroke?

- Ischemic stroke occurs due to a blood clot blocking one of the major arteries or their branches. This leads to death of the area of the brain which is supplied by the artery and development of symptoms related to the specific sites

## 6 How to identify a stroke?

A relatively sudden onset of symptoms like weakness, speaking difficulty, facial deviation, imbalance or sensory disturbances in any person should alert the individual or the family members that it might be a stroke.

Remember to "ACT FAST"

- Facial Drooping
- Arm Weakness
- Speech Difficulties
- Time

## 7 Who can get a stroke?

Stroke can occur at any age and to anyone. It is much more common in the elderly (over 65 years of age) and in patients with risk factors like diabetes mellitus, hypertension, high cholesterol, heart disease, and positive family history of stroke or heart disease.

## 8 What is thrombolysis or 'clot-busting' therapy in stroke?

The only definitive therapy known to reverse the symptoms to stroke is thrombolysis. It involves administering a medicine 'recombinant tissue plasminogen activator' (rtPA) either intravenously or intra-arterially to dissolve the clot blocking the artery. Giving this medicine is useful only during the short period of time immediately after the stroke known as the 'window period', before the part of the brain supplied by the blocked artery is completely dead. It is most effective when given within three hours after the onset of symptoms and in some instances within four-and-a-half hours of symptom onset. It prevents further damage in the brain by restoring the blood flow. However, the area which is already completely dead cannot be salvaged.

## 9 What is mechanical thrombectomy in the treatment of stroke?

Mechanical thrombectomy is a treatment for stroke that removes clots that block large blood vessels. Some patients may be candidates for this procedure using an angiogram or a catheterization and a device that grabs clots and removes them, to reestablish blood flow to the brain. Unfortunately, not everyone is a candidate for mechanical thrombectomy, because it requires that a patient has a large vessel that's blocked and should be done within 24hrs.

## 10 What treatment is possible if the patient reaches outside the 'window period'?

A patient who reaches outside the window period, i.e. when the clot-busting therapy is no longer useful, still needs evaluation and observation. Such patients have a risk of worsening of the weakness and of development of swelling of the brain, which can be life-threatening.

The therapy will depend on the cause of the stroke. Ischemic stroke patients need to be treated with drugs like aspirin which prevent clotting of blood, and further measures to control blood sugar, maintain good hydration and prevent complications.

## 11 Is there any surgery for stroke?

No surgery can cure a stroke once it happens. However, surgeries like carotid endarterectomy are done to remove clots from larger arteries which have the potential to cause recurrent strokes.

## 12 What are Transient ischemic attack (TIA)?

Transient ischemic attacks are ischemic strokes of very short duration (deficits should improve completely within 24 hrs). Patients with TIA have high likelihood of developing a full-fledged stroke in the next two weeks.

## 13 What are Hemorrhagic strokes or 'bleeds'?

Hemorrhagic stroke is due to rupture of a weakened blood vessel of the brain. The symptoms arise because the accumulated blood leads to increased pressure and compresses the surrounding brain tissue. The bleeds can occur into the substance of the brain called intracerebral bleeds or outside the brain called subarachnoid, subdural or extradural bleeds.

## 14 What are the major risk factors for Stroke?

About 90% of the strokes occur in patients with one of the risk factors.

*The major risk factors for stroke are:*

**Older age:** Individuals over the age of 65 years have the highest risk of developing a stroke.