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## **STROKE AND PREVENTION OF STROKE**

### **1. What is Stroke?**

Stroke, or Brain Attack, is caused by insufficient blood supply to part of the brain, leading to brain damage.

Stroke is common and it is the second leading cause of death worldwide (1). Stroke is also the leading cause of adult disability. In Malaysia, stroke is the third largest cause of death after heart disease and cancer (2). It is estimated that 6 new stroke cases occur every hour in Malaysia (3).

### **2. Are there different types of Stroke?**

There are 2 main types of stroke:

**Ischaemic stroke** : most common type of stroke and accounts for about ~80% of stroke. It is caused by blockage of blood vessels supplying the brain.

**Haemorrhagic stroke** : less common type of stroke, accounting for the remaining ~20% of stroke. It is caused by rupture or burst of weakened blood vessel, leading to bleeding inside the brain. Haemorrhagic stroke causes higher death rate compared to ischaemic stroke.

In both Ischaemic and Haemorrhagic Stroke, symptoms of stroke persist for more than 24 hours.

### **3. What is a mini-stroke or transient ischaemic attack?**

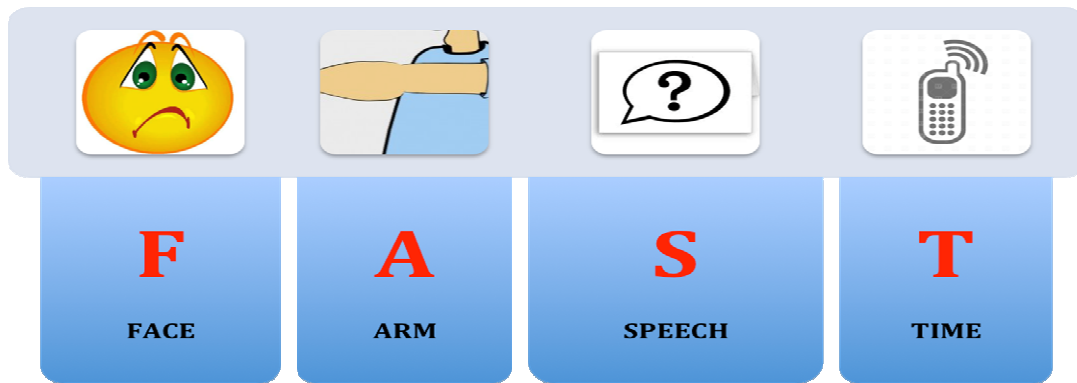
**Transient Ischaemic attack (TIA)** is when symptoms of stroke last less than 24 hours and the person recovers fully. It is caused by temporary interruption of blood supply to area of the brain.

### **4. What are the symptoms and signs of stroke?**

Stroke occurs suddenly, sometimes only noticed when a person wakes up from sleep. As different areas in the brain control different functions, symptoms of stroke depend upon which area of the brain is affected. Some of the common symptoms are:

- *Numbness, weakness, or both over one-side of the body (arm & leg)*
- *Difficulty talking, slurred speech, or difficulty in understanding speech*
- *Difficulty swallowing*
- *Dizziness, nausea, vomiting or loss of balance*
- *Severe headache or vomiting*
- *Confusion*
- *Blurring of vision in one or both eyes*

**What is F.A.S.T?** A simple checklist if you suspect someone has a stroke. The acronym of stroke symptoms stands for:



**Face drooping:** ask the person to smile. Does one side of the face droop?

**Arm weakness:** ask the person to raise both arms. Does one arm drift downward?

**Speech difficulty:** ask the person to repeat a simple sentence or talk to them. Is the speech slurred or strange?

**Time** to call ambulance: if someone shows any of the above symptoms, call an ambulance (call 999 or send them to the nearest hospital immediately. Check the time so you know when the stroke occurred.

**Stroke is a medical emergency!** Once stroke is suspected, call an ambulance or send the person to the nearest hospital, as soon as possible. The earlier the treatment is initiated the better is the outcome for the patient.

## 5. What are risk factors for stroke?

Risk factors are categorized as non-modifiable and modifiable risk factors:

**Non-modifiable risk factors:** risk factors that cannot be changed.

- **Age:** Risk of stroke doubles every decade after 55 year-old (4). But strokes can affect young people too.
- **Gender:** Men have higher risk than women to develop stroke.
- **Ethnicity and family history of stroke.**

**Modifiable risk factors:** risk factors that can be reduced or controlled.

- **Hypertension:** most prevalent risk factor, up to 75.1% (5)
- **Diabetes mellitus** [45.7% (5)]
- **Heart disease** (includes irregular heart rhythm – Atrial fibrillation, certain types of heart valves disease and severe heart failure)
- **Previous history of stroke or transient ischaemic attack** [22.0% (6)]
- **Dyslipidaemia** [21.8% (5)]
- **Active smoker** [19.0% (5)]
- Others: **obesity, physical inactivity, heavy alcohol consumption.**

## 6. What are the treatments for stroke?

Treatment involves doctors and staff from multiple medical disciplines and depends on the type of stroke a person had.

### In Ischaemic Stroke:

- Blood-thinning medications maybe initiated to prevent further clot formation.
- Thrombolytic or “clot-buster” drug to dissolve blood clot blocking blood vessel in the brain. However, it is only available in certain hospitals and only appropriate for selected group of patients who come to hospital within 4.5 hours from the onset of stroke.
- Medications to control other risk factors, such as hypertension, diabetes mellitus, dyslipidaemia, atrial fibrillation
- Surgery (carotid endarterectomy) maybe beneficial if there is severe narrowing of blood vessel in the neck

### In Haemorrhagic Stroke:

- Medication to control risk factors, such as hypertension, diabetes mellitus, dyslipidaemia, atrial fibrillation
- Surgery. If cause of bleeding in the brain can be found such as abnormal ballooning of blood vessel (aneurysm), or sometimes to relieve pressure in the brain.

**Rehabilitaton** plays an important role in post-stroke care.

## 7. So, how do we prevent stroke?

Stroke prevention could be achieved by controlling the risk factors via life-style modification and drug treatments.

### *Life-style modifications:*

- **Dietary advice:** Reduced daily fat intake to 30% or less, and replacing saturated fat with monounsaturated and polyunsaturated fat. Eat at least 5 portions of fruit and vegetables per day, and at least 2 portions of fish per week. Reduced salt intake to reduce blood pressure.
- **Physical activity:** Exercise 5 days a week, each time 30 minutes or more, but to adjust to each individual maximum safe capacity. Whenever possible to incorporate exercise into daily routine, such as brisk walking, cycling and using staircase.
- **Weight management:** To achieve ideal body weight based on Asian Body Mass Index (BMI)

BMI	Singapore	Western
Obesity	≥ 27.5	> 30
Overweight	23 – 27.4	25.1 – 30

Normal	18.5 – 22.9	18.5 – 24.9
Underweight	< 18.5	< 18.5

Asian Body Mass Index (BMI)

(source: *Singapore Ministry of Health and Health Promotion Board*)

<http://www.hpb.gov.sg/HOPPortal/health-article/HPB-039406>

- **Smoking cessation:** Stop smoking. Seek help at quit smoking clinics.
- **Modest alcohol consumption:** Men: limit alcohol intake to < 21 units per week. Women: < 14 units of alcohol per week

**Drug treatments to modify risk factors:**

- **Hypertension:** Prevalence of hypertension among Malaysian is high, at 43.5% in people aged 30 years and above (6). Majority of hypertensive patient in Malaysia remained undiagnosed. Target blood pressure for people younger than 80 year-old is < 140/90 mmHg, and for 80 year-old or more is < 150/90 mmHg (6).
- **Diabetes mellitus:** Medications for optimal blood sugar control in addition to diabetic diet
- **Heart disease:** Anticoagulation therapy (to prevent formation of blood clot in the heart) in people with abnormal heart rhythm (Atrial fibrillation), heart valve disease and severe heart failure.
- **Hypercholesterolemia:** High-risk patients required medication (statin) to control cholesterol level.

**Conclusions:**

- Stroke can affect anyone and it is one of the leading causes of disability and death.
- Stroke is a medical emergency!
- Increased awareness of stroke symptoms and signs (F.A.S.T. checklist) with timely action to seek medical treatment will improve outcome.
- Stroke is preventable via control of modifiable risk factors.

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