



# Standard Treatment Workflow (STW) for the Management of STROKE

## ICD-10-I63, I64

### WHAT IS STROKE?

An episode of neurological dysfunction caused by focal cerebral, spinal, or retinal infarction or haemorrhage



### SYMPTOMS

- Numbness or weakness, especially on one side of the body
- Loss of consciousness or altered consciousness
- Decreased vision in one or both eyes
- Language difficulties, either in speaking or understanding
- Difficulty walking; loss of balance or coordination
- Confusion or loss of memory
- Swallowing difficulties
- Paralysis of any part of the body, including face
- Sudden, severe headache with no known cause
- Neck pain
- Nausea and vomiting

### WARNING SIGNS (BEFAST)

- **BALANCE** : Loss of balance or coordination
- **EYES** : Sudden blurred or double vision/ sudden, persistent vision trouble
- **FACE** : Deviation at the angle of the mouth
- **ARM** : Arm Drift
- **SPEECH** : Slurred speech or the inability to speak or understand
- **TIME** : Act fast
- Sudden new onset of headache or loss of consciousness
- Sudden giddiness, vomiting and imbalance

### TYPES OF STROKE

<b>Ischemic stroke</b> Focal cerebral, spinal, or retinal infarction	<b>Intracerebral haemorrhage</b> Focal collection of blood within the brain parenchyma or ventricular system that is not caused by trauma	<b>Subarachnoid haemorrhage</b> Bleeding into the subarachnoid space	<b>Cerebral venous thrombosis</b> Thrombosis of a cerebral venous structure	<b>Transient Ischemic Attack (TIA)</b> Transient episode of neurologic dysfunction caused by focal cerebral, spinal cord, or retinal ischemia, without acute infarction
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### PRELIMINARY MANAGEMENT

- Assess and manage ABCs
- Initiate cardiac monitoring
- Maintain O<sub>2</sub> saturation >94%
- Establish IV access
- Determine blood glucose and treat accordingly
- Determine time of symptom onset or last known normal, and obtain family contact information, preferably a cell phone
- Triage and RAPID TRANSFER of patient to nearest district hospital with CT Scan facility or Stroke center with facility for thrombolysis
- Referral hospital to be notified to handle the referred patient with stroke

### INVESTIGATIONS

#### ESSENTIAL

- CT Scan head
- ECG
- Blood Sugar
- Lipids
- Renal parameter

#### DESIRABLE

- CTA
- Echocardiogram

#### OPTIONAL

- MRI/MRA
- Holter monitoring

### MANAGEMENT

#### STROKE ONSET TIME: <4.5 HOURS

**ISCHEMIC: \***  
 IV tPA (0-4.5 hrs) or endovascular treatment according to eligibility and availability

#### HAEMORRHAGIC:

- Dysphagia assessment,
- Blood pressure/blood sugar monitoring and IV fluids.
- Prevention of Pneumonia
- Prophylaxis for deep venous thrombosis etc, monitor and record ECG

#### \* RECOMMENDED DIAGNOSTIC STUDIES

#### ALL PATIENTS

- Noncontrast brain CT or brain MRI
- Blood glucose
- Oxygen saturation
- Serum electrolytes/renal function tests
- Complete blood count, including platelet count
- Markers of cardiac ischemia
- BT, CT, Prothrombin time/INR
- Activated partial thromboplastin time
- ECG
- FLP and carotid doppler (ischemic stroke)

#### SELECTED PATIENTS

- TT and/or ECT if it is suspected the patient is taking direct thrombin inhibitors or direct factor Xa inhibitors
- Liver function tests
- Toxicology screen
- Blood alcohol level
- Pregnancy test
- Arterial blood gas test (if hypoxia is suspected)
- Chest radiography (if lung disease is suspected)
- Lumbar puncture (if subarachnoid hemorrhage is suspected and CT scan is negative for blood)
- Electroencephalogram (if seizures are suspected)

#### STROKE ONSET TIME: >4.5 HOURS

Rapid Assessment, CODE Stroke, Blood pressure and Blood Sugar monitoring, NIHSS, Intravenous lines Endovascular treatment with Mechanical thrombectomy using stent retriever (4.5 hrs to 24hrs) according to eligibility

#### SECONDARY PREVENTION

Aspirin (in ischemic stroke)  
 Antihypertensives  
 Antidiabetics  
 Lipid lowering agents

#### REHABILITATION

Physiotherapy  
 Speech Therapy  
 Occupational Therapy  
 Vocational training

#### DISCHARGE PLANNING

(checklist : drugs, diet, compliance, exercises, health education)

**FOLLOW UP** at 2<sup>nd</sup> week, 1<sup>st</sup> month, 3<sup>rd</sup> month and 6<sup>th</sup> month

### STROKE UNIT MANAGEMENT

- Medical and Nursing staff : control of blood pressure; control of diabetes; swallow assessment; DVT prophylaxis; antiplatelet drugs
- Rehabilitation staff:
  - » Acute phase: basic bed mobility, transfer techniques, communication training, prevention of complications
  - » Subacute and chronic phase: mobility, gait and balance training, training of activities of daily living (grooming, eating, dressing etc), bowel/bladder training, perceptual and cognitive rehabilitation, provision of assistive devices.

### KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES