



Stroke

- Neurological deficit attributed to an acute focal injury of the CNS by a vascular cause
- **Ischaemic stroke 80-87%** occlusion of artery by clot (thrombus in brain artery or embolus from heart or major artery)
- **Haemorrhagic stroke 13-20%** a weakened vessel ruptures or a coagulation defect leads to bleeding into surrounding brain
- A leading cause of death and disability worldwide. Stroke occurs at a younger age in LMICs, often affecting people at the peak of their productive lives.
- **Hypertension** is the most modifiable risk factor for stroke
- TIA (transient ischaemic attack) features of a stroke but resolves <24 hours.

TIAs are a warning sign for stroke – 20% go on to have a stroke in the next 3 months (especially the first few days). <u>Consider</u> TIA as small ischaemic stroke.

Risk Factors for Stroke

Both types: age, hypertension, alcohol **Ischaemic:** male sex, diabetes, cardiac disease, AFib, smoking, obesity, lack of exercise, high cholesterol, sickle cell, HIV, COCP use

Haemorrhagic: coagulopathies, eclampsia, intra-cerebral vascular malformations, anticoagulant and thrombolytic therapy, vasculitis, brain tumour

Management of acute stroke/TIA

FAST test:

Face: ask the person to smile – does one side of the mouth or face drop?

Arms: can both be raised? Does one drift downwards? Speech: can they repeat a sentence correctly? Do they slur words?

Time: If anything is abnormal do something, now!

Symptoms of acute stroke/TIA

Simultaneous, quick history and examination

History – determine time of onset, progression of symptoms, risk factors and co-morbidities

Examination – ABC, pulse regular? GCS, <u>glucose</u>, signs of CNS infection or trauma, <u>FAST test</u>, CV and resp exam, more detailed CNS examination as appropriate (but do not delay action). If acute stroke suspected – transfer to casualty immediately!

Likely stroke:

- · Focal cerebral/retinal symptoms
- Motor or sensory weakness in 2 limbs, or 1 limb and the face
- Homonymous hemianopia or monocular blindness
- Aphasia or dysarthria

Possible stroke (especially if >1 of these): unsteady gait, diplopia, vertigo/dizziness, dysphagia Stroke less likely: amnesia, confusion, transient loss of consciousness, incoordination of limbs, partial sensory deficit, visual hallucinations. It is not possible to tell from symptoms if a stroke is ischaemic or haemorrhagic, but sudden onset severe headache, vomiting +/- loss of consciousness more likely with haemorrhage

TIA suspected (complete resolution of symptoms <24h)

- Give aspirin 300mg PO stat
- <u>Discuss all cases with consultant</u> (there is often an alternative diagnosis)
- Consider need for CT head scan (may not be necessary if diagnosis clear as TIA indicates ischaemia and CT often not helpful)
- ECG for ?AFib or other signs of heart disease
- Once TIA confirmed, continue treatment:
 - If non cardiac cause of TIA and if clopidogrel available, start DAPT (dual antiplatelet therapy):

give clopidogrel 300mg stat in addition to the aspirin already given,

then continue aspirin 75mg and clopidogrel 75mg for 21 days total;

then continue with clopidogrel 75mg OD lifelong (if affordable); OR aspirin 75mg

2. If non cardiac cause of TIA but clopidogrel not available:

Aspirin 300mg OD for 2 weeks then drop to 75mg OD lifelong

- **3.** If AFib or another cause of cardioembolic TIA: start rivaroxaban and do not continue aspirin
- Look for and treat all modifiable risk factors
- Check HbA1c, creatinine, urine protein and other tests as indicated (no need to check lipids as statin is indicated anyway)
- Secondary prevention as for ischaemic stroke (p2)

Acute CVA suspected

- <u>Always manage acute stroke (<24h since onset) in casualty!</u> Longer history and stable may be possible to investigate in OPD.
- <u>Urgent</u> head CT (no contrast) target is <30 minutes of patient arrival at hospital!
- Involve coverage nurse/casualty supervisor immediately to ensure no delays
- Calculate NIHSS score (MDCalc); copy and paste into notes
- Very high BP (>220/120): if encephalopathy, reduce BP by 20-25% immediately; if no encephalopathy, lower BP by 15% during first 24h; otherwise don't lower BP initially unless planning thrombolysis

Haemorrhagic stroke confirmed/ suspected on CT

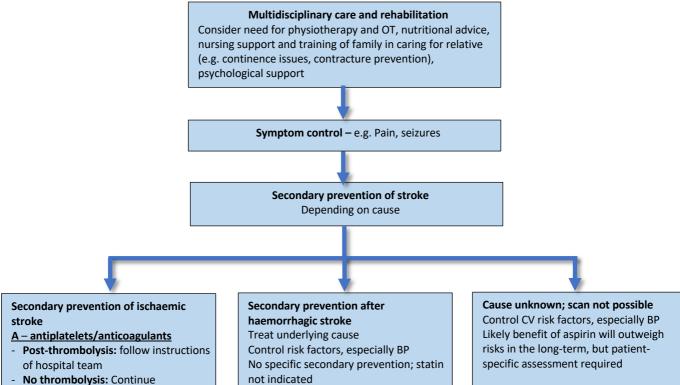
- Intracerebral or subarachnoid haemorrhage?
- Neurosurgical consult as necessary
- Correct any clotting problem

Ischaemic stroke confirmed/suspected on CT

- Consider for thrombolysis (if <4.5h of onset symptoms & NIHSS 6-25; cost 130k) or for transfer for thrombectomy (possible within 6-24h of onset; best functional outcomes; cost 600k-1mill) further info p3
 See Kenya emergency guidelines, thrombolysis protocol: https://www.emergencymedicinekenya.org/algorithms/
- If thrombolysis/thrombectomy is not possible/indicated: aspirin 300mg stat then discuss next steps with consultant –
 - In most cases monotherapy with aspirin (doses and duration as for TIA)
- DAPT <u>may</u> be considered if small, mild stroke (NIHSS 0-4 *and* small area of ischaemia (risk of bleeding high if large area)
- **If AFib/cardiac cause**: treat with aspirin 300mg OD for 2w BEFORE anticoagulation
- Statin high dose once can swallow
- Multidisciplinary supportive care and rehabilitation
- Look for and treat modifiable risk factors/causes
- Long-term follow up and secondary prevention (page 2)

Kijabe OPD Guidelines

Long term management of stroke



affordable); OR aspirin 75mg + omeprazole 20mg OD if dyspepsia

monotherapy or DAPT in discussions with consultant (page 1); then clopidogrel 75mg OD lifelong (if

AFib or other cardiac cause: aspirin 300mg OD for 2w post stroke, then switch to rivaroxaban - see AFib guideline

B - **blood pressure**-lowering medication

Target as with all hypertension:

- <140/90 if <80y
- <150/90 if >80y
- <130/80 if CKD + proteinuria

C - cessation of cigarette smoking, cholesterol-lowering medication

High dose atorvastatin (start 40mg OD then increase to 80mg if tolerated and affordable). No need to check lipids as statin indicated anyway

D - diet, diabetes control

E - exercise - mobilise as soon as possible

not indicated

References

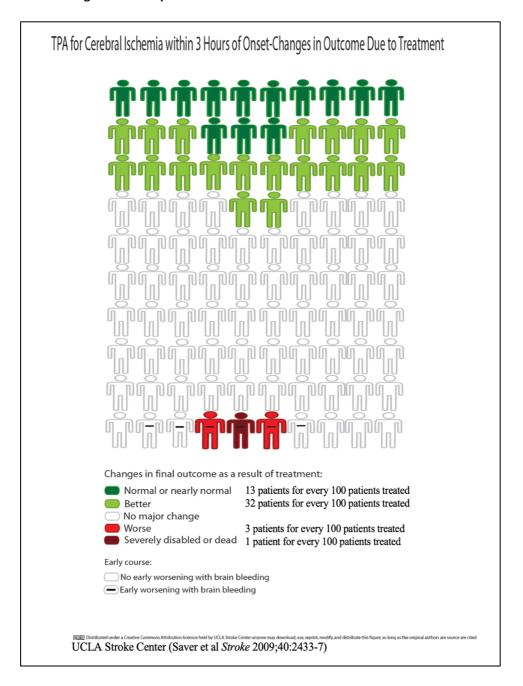
Kenya National Guidelines for the Management of Cardiovascular Diseases, MOH 2024; Stroke: a global response is needed, WHO http://www.who.int/bulletin/vol- umes/94/9/16-181636; NICE guidance NG128, updated 2022; Up-To-Date accessed 6/3/25; NICE NG128 https://www.nice.org.uk/guidance/ng128; Aspirin for secondary prevention after stroke of unknown etiology in resource-limited settings: a decision analysis, Aug 2014, Neurology; JAMA 2022;327:813; NEJM 2020;382:1933; Kenya emergency guidelines 2023, thrombolysis protocol, https://www.emergencymedicinekenya.org/algorithms/

^{*}Consider carotid doppler to look for carotid stenosis if patient is a candidate for referral for carotid endarterectomy

Kijabe Hospital Health Care to God's Glory

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Decision aids for when discussing treatment options:



Thrombectomy – for large-vessel ischaemic stroke, 6-24h from onset of symptoms:

Functional independence at 90 days: 28-33 patients for every 100 patients treated (NNT 3-4) Worse (intracranial haemorrhage): 3 patients for every 100 patients treated (NNT 35)

Reference: Nogueira et al; N Engl J Med. 2018;378:11-21.