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). *Consider 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

Symptoms of acute stroke/TIA

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

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!

Simultaneous history and examination
History – determine time of onset, progression symptoms, risk factors and co-morbidities
Examination – ABC, pulse regular? GCS, glucose, signs of CNS infection or trauma, FAST test, CV and resp exam, more detailed CNS examination as appropriate (but do not delay action)

TIA suspected
(complete resolution of symptoms <24h)
- Discuss with consultant
- Aspirin 300mg start immediately and continue for 2 weeks (if no contraindications); then continue longterm as for ischaemic stroke (page 2)
- Consider need for CT head scan (may not be necessary if diagnosis clear as TIA indicates ischaemia)
- 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)
- ECG for ?AFib or other signs of heart disease
- Secondary prevention – as for ischaemic stroke (page 2)

Acute CVA suspected
- Urgent head CT (no contrast)
- Admit to casualty for further assessment
- Need for admission depending on severity and ability to swallow
- **See Emergency guidelines** for BP management

Haemorrhagic stroke confirmed
- Intracerebral or subarachnoid haemorrhage?
- Neurosurgical consult as necessary

Ischaemic stroke confirmed
- Consideration for thrombolysis (if within 4.5h of onset symptoms) **See Emergency guidelines**
- If no thrombolysis, Aspirin 300mg OD for 2 weeks, then long-term low dose (page 2)
- If AFib as cause, treat with aspirin 300mg OD for 2w BEFORE considering anticoagulation
- Statin

- Multidisciplinary supportive care and rehabilitation
- Look for and treat modifiable risk factors/causes
- Long-term follow up and secondary prevention (page 2)

Long term management of stroke

Multidisciplinary care and rehabilitation
Consider need for physiotherapy and OT, nutritional advice, nursing support and training of family in caring for relative (e.g. continence issues, contracture prevention), psychological support

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Symptom control – e.g. Pain, seizures

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Secondary prevention of stroke
Depending on cause

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Secondary prevention of ischaemic stroke
A – antiplatelets* (aspirin 300mg OD for 2 weeks after acute stroke, then 75mg OD for life; clopidogrel 75mg OD if aspirin not tolerated; + omeprazole 20mg OD if symptomatic)
or anticoagulants if AFib (after initial 2 weeks aspirin 300mg OD post stroke, 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

*Some patients are discharged from hospital with dual anti-platelet therapy. This is usually to be dropped down to single agent after 3 weeks, but if plan not clear please discuss with consultant or cardiologist

Secondary prevention after haemorrhagic stroke
Treat underlying cause
Control risk factors, especially BP
No specific secondary prevention; statin not indicated

Cause unknown; scan not possible
Control CV risk factors, especially BP
Likely benefit of aspirin will outweigh risks in the long-term, but patient-specific assessment required

References
Kenya National Guidelines for Cardiovascular Diseases Management, MOH 2018; Stroke: a global response is needed, WHO http://www.who.int/bulletin/vol- umes/94/9/16-181636; Red Whale Update: stroke and TIA https://www.redwhale.co.uk/content/stroke-and-tia; Up-To-Date accessed 20/10/23; Aspirin for secondary prevention after stroke of unknown etiology in resource-limited settings: a decision analysis, Aug 2014, Neurology