

## Description

Essentially a CVA (usually embolic) which spontaneously resolves completely in <24hrs, usually only mins. RIND (Reversible Ischaemic Neurological Deficit) is a term sometimes used for symptoms lasting between 24hrs & 3wks. The effects of a stroke or full CVA last longer.

## Epidemiology

- Incidence is ~40/100,000 population. Commoner with increasing age.
- Rare <60yr.
- Overall incidence is decreasing, perhaps as hypertension is better controlled.
- M>F, Black>White.
- About 15% of first stroke victims have had a preceding TIA.

## Risk factors

As for stroke (see separate article). Similar to CHD RF, and BP is even more important.

## Aetiology

Usually thromboembolic, sometimes spasm (cocaine), dissection, rarely haemodynamic:

- 80% brain blood supply via carotids and 20% via vertebrobasilar. Collateral flow by Circle of Willis not complete and ↓ with advancing years.
- Emboli sources: Carotids (most common, a bruit suggests stenosis) usually at the bifurcation, cardiac (AF, MV or AoV disease, post-MI mural thrombus, atrial myxoma), vertebrobasilar arteries, occasionally paradoxical embolism via a R→L cardiac shunt.

## History

Usual duration is <1hr. Onset is over a few minutes. Clinical features dep on ischaemic area:

### Carotid territory (80%)

- Usually unilateral weakness, affecting an arm, leg, or one side of the face ± dysarthria.
- There may be sensory symptoms in the same areas, Broca's dysphasia (inconsistent and unpredictable speech errors, or Amaurosis Fugax (fleeting loss of vision)

### Vertebrobasilar territory (20%)

- Visual cortex effects (homonymous hemianopia, bilateral blindness)
- There may be hemiparesis, hemisensory symptoms, cerebellar signs, diplopia, vertigo, vomiting, dysarthria, dysphagia, or ataxia.

Fleeting symptoms may be more obvious to bystanders than to the patient.

Ask about duration, intensity and fluctuation of symptoms.

Were there any simultaneous cardiac symptoms?

Global symptoms by themselves (unsteadiness, dizziness, syncope) are rarely due to TIA.

Past History:

- Previous similar symptoms, stroke or any CHD?
- Recent surgery especially on the heart or carotids?
- Risk factors?
- Other medical conditions and medications e.g. temporal arteritis.
- If it presents <<60yrs ask about drug abuse, especially cocaine.

## Examination

- Neurological examination - but often may have reverted to normal.
- CVS exam for AF, murmurs, carotid bruits, BP, pulses

## Differential diagnosis

- Stroke (until >24hrs passed)
- Intracranial lesion (tumour or SDH).
- Syncope due to cardiac arrhythmia
- Temporal arteritis
- Migraine, or migrainous aura
- Retinal or vitreous haemorrhage
- Focal fit or Todd's paralysis
- Labyrinthine disorders
- Transient global amnesia
- Psychological disorders (incl hyperventilation)
- Metabolic disturbance (e.g. hypoBSL)

The following suggest an alternative diagnosis:

- Isolated confusion
- General weakness
- Isolated dizziness
- Falls
- Isolated amnesia
- Fainting
- Isolated tinnitus
- Scintillating scotoma

## Initial Rapid Assessment - NICS Emergency Dept Stroke & TIA Care Bundle

### 1. Rapid initial stroke screen:

e.g. ROSIER (93% sens, 83% spec):

LOC or syncope	-1
Seizure	-1
<i>New acute onset of:</i>	
Asymmetric facial weakness	+1
Asymmetric arm weakness	+1
Asymmetric leg weakness	+1
Speech disturbance	+1
Visual field defect	+1
<b>Score <math>\leq 0</math> stroke unlikely</b>	

Also includes recording the:

- GCS
- BP
- BSL

### 2. ABCD<sup>2</sup> assessment if TIA suspected:

Age	Age >60	+1
Blood pressure	BP >140 systolic and/or >90 diastolic	+1
Clinical features	Unilateral weakness	+2
	Speech disturbance without weakness	+1
	Other	0
Duration of symptoms	>60 minutes	+2
	10-60 minutes	+1
	<10 minutes	0
Diabetes		+1
<b>Score &gt;4 = High risk, <math>\leq 4</math> = Low risk</b>		

### 3. Urgent CT or MRI

- Stroke or High risk TIA: ASAP <24hr
- Low risk TIA: <72hr +/- a carotid USS (where indicated)

### 4. Nil by mouth until bedside swallow screen (within 24 hours) for stroke

### 5. Aspirin 150-300mg PO as soon as possible (<48hr) if haemorrhage excluded

### 6. Physiological monitoring and management:

- Neurological status - regular monitoring e.g. GCS
- BSL - cautiously treat marked hyperglycaemia. Avoid hypoglycaemia
- BP - cautiously lower by 10-20% if  $\geq 220/120$ mmHg or MAP  $\geq 130$ . Avoid hypoBP
- Hydration status - maintain euvolaemia

## Other Investigations

- Urine - ?glucose
- Bloods - FBC, UEC, coags, glucose, cholesterol, ESR, Antiphospholipid antibodies
- ECG - AF, MI, ischaemia. Consider Holter for arrhythmia if no other cause found.
- Echo - ?cardiac lesion/thrombus
- Duplex Doppler or MRA studies of carotids/vertebral arteries within 24-72hrs
- CXR - cardiac enlargement, detect diff Dx of aortic dissection
- CT/MRI - may show ischaemia, or evidence of CADASIL (cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy - most common form of hereditary stroke disorder caused by mutations of the Notch 3 gene on Chr.19)

## Management Notes

- Antiplatelet therapy and anticoagulation
  - Aspirin 75-300mg ± a PPI, reduces stroke risk by 20-30%
  - If already on aspirin may benefit by adding dipyridamole (Cochrane disputes)
  - Ticlopidine or clopidogrel may be used if unable to take aspirin.
  - Intravenous antiplatelet therapy with glycoprotein IIb/IIIa controversial
  - Heparin may be beneficial. Warfarin is drug of choice in atrial fibrillation.
- Treat any risk factors
  - Control AF, hypertension (aim <140/85), diabetes
  - Stop smoking, reduce obesity and encourage exercise
  - ?Start a statin
- Consider admission if high risk (see below), recurrent, despite therapy
- Surgery - Carotid endarterectomy if stenosis >70% or angioplasty/stenting
- Driving ceased for 1-4wks especially if high risk.

**The PROGRESS trial** (Perindopril pROtection aGainst REcurrent Stroke Study) showed Rx with ACEI & thiazide → larger ↓BP and ↓CVA than with perindopril alone. Consider these two agents routinely if Hx of prev CVA or TIA, whether HT or normotensive.

## Prognosis

- TIA is not fatal but strong risk of fatality if it progresses to a full stroke.
- 2-Day stroke risk on ABCD<sup>2</sup> Score: 0-3 = 1.0%, 4-5 = 4.1%, 6-7 = 8.1%
- 7-Day stroke risk on ABCD<sup>2</sup> Score: 0-3 = 1.2%, 4-5 = 5.9%, 6-7 = 11.7%
- Risk of stroke in first month after TIA is 5-10%.
- Risk of stroke in first year after TIA is 10-20%.
- Risk of stroke in 5 years after TIA is 30%.
- Annual risk during next 4 years is 7% (7 times normal risk).
- Risk greater with:
  - Frequent TIAs
  - Cerebral vs ocular events
  - Severe carotid stenosis.
  - Age over 60
  - Diabetes
  - Symptoms longer than 10mins
  - Weakness
  - Impairment of speech