

Stroke and Transient Ischaemic Attack

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The stroke syndromes

- **Stroke:** permanent deficit from cerebral infarction or haemorrhage
- **TIA:** temporary, completely reversible episode of focal, non-convulsive neurological dysfunction secondary to failure of perfusion of the brain, retina or cochlea

Stroke misdiagnosis rate of 10% or more

- Fits
- Faints
- Migraine
- Tumour
- Subdural haematoma

Transient ischaemic attacks

- Defined as less than 24 hours duration, but most last less than 4 hours
- A clinical event meeting the criteria for a TIA may actually be caused by minor infarction
- Definition may change in next 2 – 3 years

Mechanisms of stroke

- 85% ischaemic, i.e. thrombotic or embolic
- 15% haemorrhagic
- Up to 50% of vertebrobasilar strokes are embolic

Clinical stroke syndromes

- TACS: total anterior circulation syndrome
- Hemiparesis and hemisensory loss, and
- Homonymous hemianopia, and
- Cortical dysfunction (according to side)

Clinical stroke syndromes

- PACS: partial anterior circulation syndrome
- Any two of these, or cortical dysfunction alone:
 - Hemiparesis and hemisensory loss
 - Homonymous hemianopia
 - Cortical dysfunction (according to side)

Clinical stroke syndromes

- LACS: lacunar syndrome
- Hemiparesis, or
- Hemisensory loss, or
- Hemisensorimotor loss, or
- Ataxic hemiparesis, but
- No hemianopia or cortical dysfunction

Clinical stroke syndromes

- POCS: posterior circulation syndrome
- Brainstem symptoms and signs, such as
- Diplopia, vertigo, dysphagia, dysarthria, ataxia, bilateral limb deficits, fluctuating consciousness, hemianopia, cortical blindness

Clinical stroke syndromes: prognosis at one year

Type	Dead	Dependent	Independent
TACS	60%	35%	5%
PACS	15%	30%	55%
LACS	10%	30%	60%
POCS	20%	20%	60%

Epidemiology in Australia (2017)

- 74,000 strokes per year, with ?18,000 TIAs
- 29,500 die within a year
- 23,000 disabled and dependent on a carer
- 21,000 independent

(Dr A Thrift, SSA 2002 Annual Conference)

Risk factors

[conventional risk factors account for only 50% of (cerebro)vascular disease]

- Age
- Hypertension
- Heart disease
- Atrial fibrillation
- Smoking for a long time
- Diabetes
- ?lipids

Immediate investigations and yield

- FBC 1%, ESR 2%
- Urea and electrolytes 3%
- Glucose 5%
- Urinalysis 5%
- ECG 17%
- Early non-contrast CT scan 20% (MRI better)
- Lipids 45%

Other investigations

- CXR, echocardiogram, TOE (NB aortic atheroma)
- Homocysteine
- MRI and MRA
- Carotid and transcranial doppler studies (n.b. absence of bruit not good predictor)
- Cerebral angiography
- Specialised tests in younger patients

Why actively treat TIAs?

- Only 15% of stroke patients have had a prior TIA
- Only half of these report the episode
- Only then is medical intervention possible, lowering the stroke risk, and greatly benefiting cardiac mortality
- Patients with minor ischaemic stroke will obtain similar benefits

Treatment

- Prevent the stroke in the first place
- Arrest and reverse the pathological processes in acute stroke
- Prevent further strokes, immediately and long term
- Prevent complications
- Early rehabilitation

Prevent the stroke

- Public health measures
- Identify then modify vascular risk factors
- Promote healthier styles of living

Prevent further strokes

- Secondary treatment of vascular risk factors
- Antiplatelet agents: what dose of aspirin?
ticlopidine, clopidogrel, dipyridamole
- Anticoagulation, but at what dose?
- Statin therapy: LIPID study
- Blood pressure reduction: PROGRESS study

Timing of carotid surgery

- There is a much higher early risk than we thought after TIA/minor stroke
- First ever TIA:
 - 8.6% stroke risk at 7 days
 - 12% stroke risk at 30 days
 - 17% stroke risk at 90 days

Anticoagulation for stroke prevention

- Long-term, target INR from 2.0 to 3.0
- AF, valvular disease, dilated cardiomyopathy
- In AF, annual risk reduced from 12.0% to 4.0%
- Even better in AF patients with higher stroke risk
e.g. >75 years old, hypertension, diabetes,
previous TIA or stroke, impaired left ventricular
function

PROGRESS

- Mean BP reduction was 9.0/4.0 mmHg
- P&I: 11.8/4.8 mmHg; single agent: 5.2/2.8 mmHg
- Mean follow up was 4.3 years
- Reduction: all strokes 28%; fatal/disabling 38%
- Ischaemic stroke 24%; haemorrhagic 50%

PROGRESS

- Same benefits whether diabetic or not, aspirin or not, male or female
- Same benefits for lacunar, large artery and cardioembolic strokes
- Greater benefit for younger, hypertensive and Asian patients and combination therapy
- Numbers needed to treat: 1 for 23 patients for 5 y