Management of Patients Post Stroke
Complications Post Stroke

As a direct consequence of stroke:
- Weakness
- Dysphagia
- Neglect
- Visual field deficits
- Impaired sensation
Complications Post Stroke

As a direct consequence of stroke:
- Incontinence
- Ataxia
- Cognitive impairment
- Fatigue
Complications of Immobility

- DVT/PE
- Falls
- Pressure sore/ulceration
- Constipation
Medical Complications Post Stroke

- Infections
- Malnutrition
- Pain
- Depression
- Seizures
- Spasticity
Most Common Complications?

- Depression 26%
- Shoulder pain 24%
- Falls 20%
- UTI 15%

McLean Arch Phys Med Rehabil 2004;85:466-9
Spasticity

Definition: “a motor disorder characterised by a velocity dependent increase in tonic stretch reflexes....... as one component of the Upper Motor Neuron Disorder” Lance, 1980
Treatment for Spasticity

General spasticity:
- Physical therapy
- Oral medications
- Intrathecal medications
- Surgery
Medications for Generalised Spasticity

- Baclofen (up to 120mg/day)
- Dantrolene (up to 200mg/day)
- Clonidine (less commonly used)
- Benzodiazepines (less commonly used)
Treatment of Spasticity

Local spasticity:
- Physical therapy
- Nerve phenolisation
- Botulinum toxin
- Surgery
Post Stroke Management: Secondary Prevention
Secondary Prevention of Stroke

- Behavioural change
- BP lowering/ ACE inhibition
- Antiplatelet therapy
- ? anticoagulation
- Cholesterol lowering
- Other risk factors (eg diabetes)
Secondary Prevention: Behavioural Change

- Stop smoking
- Change diet
- Regular exercise
- Watch alcohol intake
  (<2 standard drinks/day)
What’s in a Name?

- PROFESS
- HOPE
- PROGRESS
- ONTARGET
- TRANSCEND
Secondary Prevention: ACE Inhibition

- ACEI reduce mortality, myocardial infarction, stroke and heart failure

- IRRESPECTIVE of BP, ALL patients should be on an ACEI

PROGRESS trial (perindopril) Lancet 2001; 358: 1033-41
Renin-angiotensin-aldosterone system

- **Angiotensinogen** → **Angiotensin I** → **Angiotensin II**
- **Renin** is increased by decrease in renal perfusion (juxtaglomerular apparatus)
- **Liver**
- **Lungs**
- **Kidney**

**Sympathetic activity**

**Tubular Na⁺ Cl⁻ reabsorption and K⁺ excretion. H₂O retention**

**Adrenal gland: cortex**

**Aldosterone secretion**

**Water and salt retention. Effective circulating volume increases. Perfusion of the juxtaglomerular apparatus increases.**
ACEI vs ARB?

- Telmisartan modestly reduces risk of cardiovascular death, myocardial infarction and stroke
  (TRANSCEND Lancet 2008 (9644):1174-83)

- Telmisartan non inferior to ramipril
  (ONTARGET NEJM 2008; 358 (15): 1547-49)
Antiplatelets: Aspirin, Asasantin or Clopidogrel?
Secondary Prevention: Anti-Platelets

- Aspirin plus dipyridamole is superior to aspirin alone  *(ESPRIT Lancet 2006;367:1665-73)*

- Aspirin and dipyridamole has similar efficacy to clopidogrel alone  *(PROFESS, N Engl J Med 2008; 359:1238-51)*

Aspirin and Dipyridamole vs Aspirin?

Aspirin and Dipyridamole vs Clopidogrel for Stroke

Aspirin and Dipyridamole is as effective as Clopidogrel

Aspirin and Warfarin?

- Adding aspirin did NOT reduce stroke incidence
- May reduce risk of another AMI post AMI
- Increased risk of major bleeding (~2%/year)
- Combination therapy NOT recommended unless specified by cardiologist
  
  SPORTIF trial; Am Heart J 2006 Nov; 152 (5): 967-73

- No data on clopidogrel + warfarin
Secondary Prevention: Statins

- Atorvastatin 80mg/day reduced incidence of stroke and cardiovascular events
- 2.2% absolute risk reduction
- Small increase in haemorrhagic strokes

SPARCL trial, N Engl J Med 2006; 355:549-559
Secondary Prevention: Summary

All patients post stroke should be on:

- Aspirin AND dipyridamole OR clopidogrel
- ACE inhibitor
- Statin
- Antiplatelet and warfarin is not recommended, unless under guidance by cardiologist