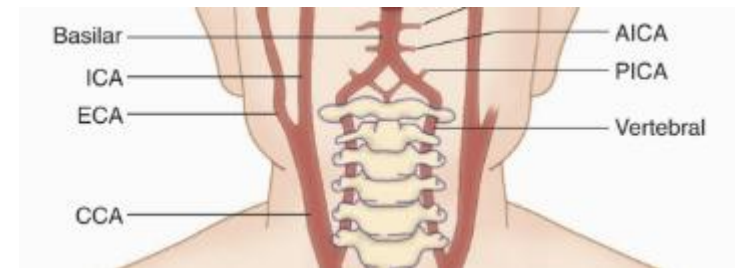
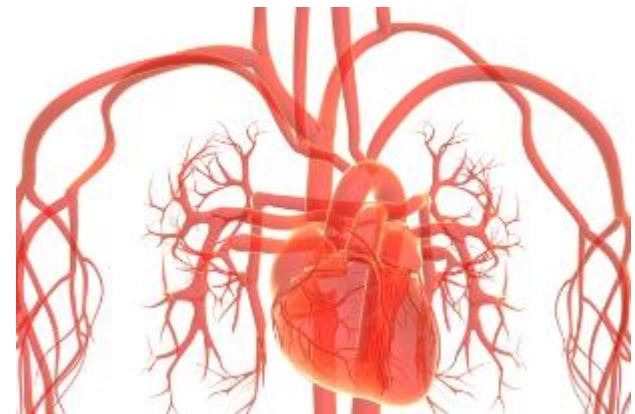


STROKE and TIA

secondary prevention



Dr Peter Wright
Neurologist
CD Stroke Waikato



Modern Stroke prevention may reduce all types of recurrence by 50-75%

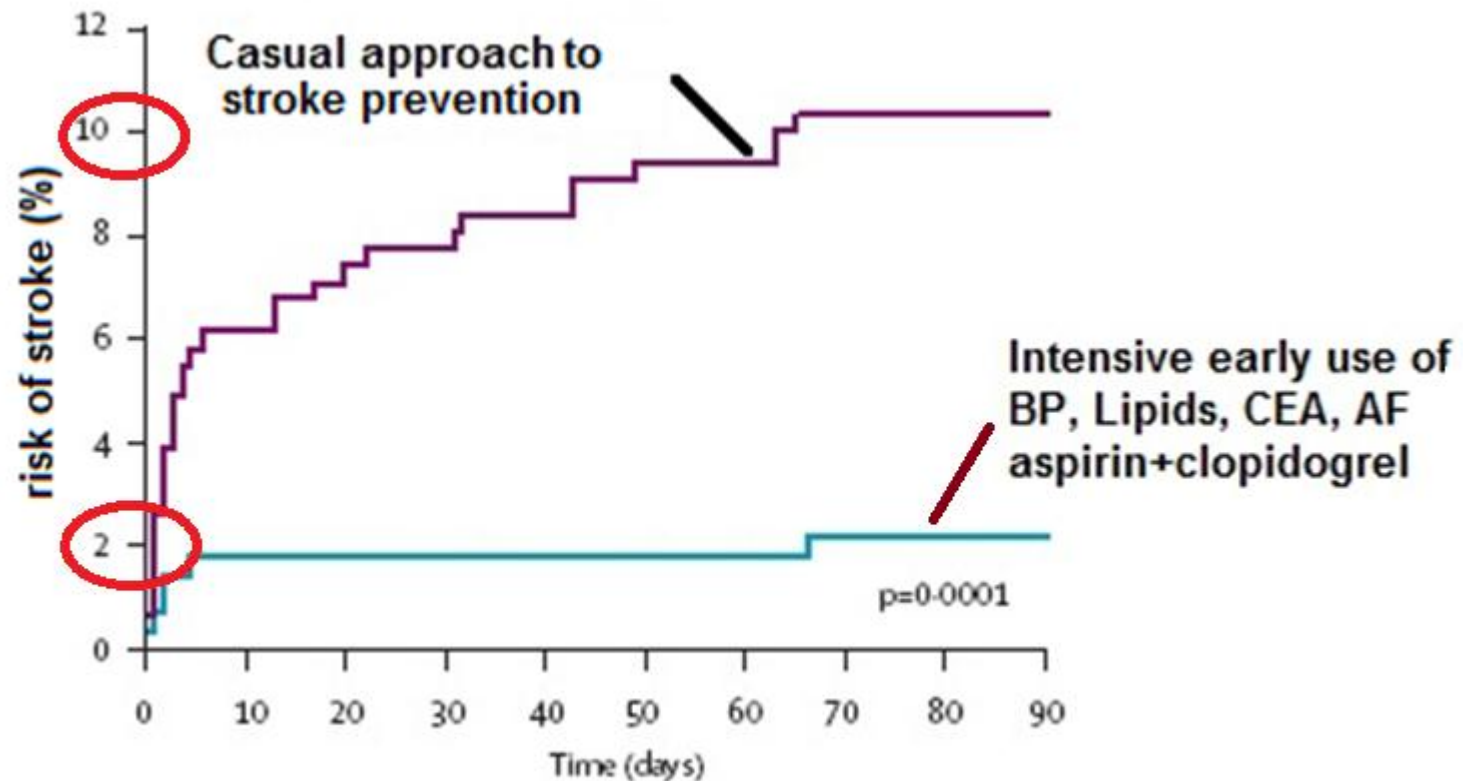
1. Polytherapy
 - Aspirin+Dipyridamole or Clopidogrel alone
 - Atorvastatin 80mg
 - ACEi+Diuretic
2. Aspirin+Clopidogrel short term in high risk
3. Endarterectomy
4. Dabigatran/AF
5. Diet, smoking, exercise, weight

Outline

1. TIA emergency
2. Stroke subtypes
 - Large vessel disease
 - Atrial fibrillation
 - Small vessel disease
3. Treat to targets
4. Lifestyle

TIA / Minor Stroke = high risk events

TIA/minor stroke – treat immediately



Aspirin +Clopidogrel short term

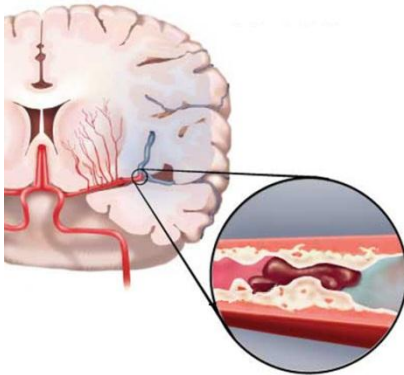
after CT for TIA (ABCD2=4+) + minor Stroke (NIHSS<4)

	Aspirin (N=2586)	Clopidogrel-Aspirin (N=2584)	Hazard Ratio (95% CI)	P Value
Ischemic stroke	11.4%	7.9%	0.67	<0.0001
Hemorrhagic stroke	0.3%	0.3%	1.01	0.98
Any Bleeding	1.6%	2.3%	1.41	0.09
Severe Bleeding	0.2%	0.2%	0.94	0.93
Moderate Bleeding	0.2%	0.1%	0.73	0.68
Mild Bleeding	0.7%	1.2%	1.57	0.13
Death from any cause	0.4%	0.4%	0.97	0.94

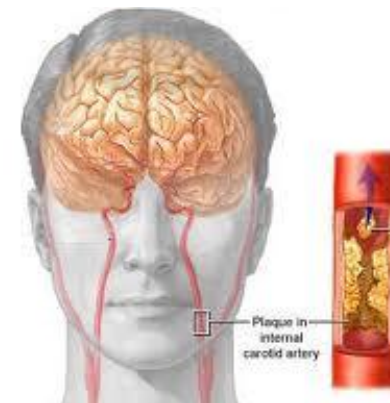
Large artery atheroma strokes

= very high risk early on

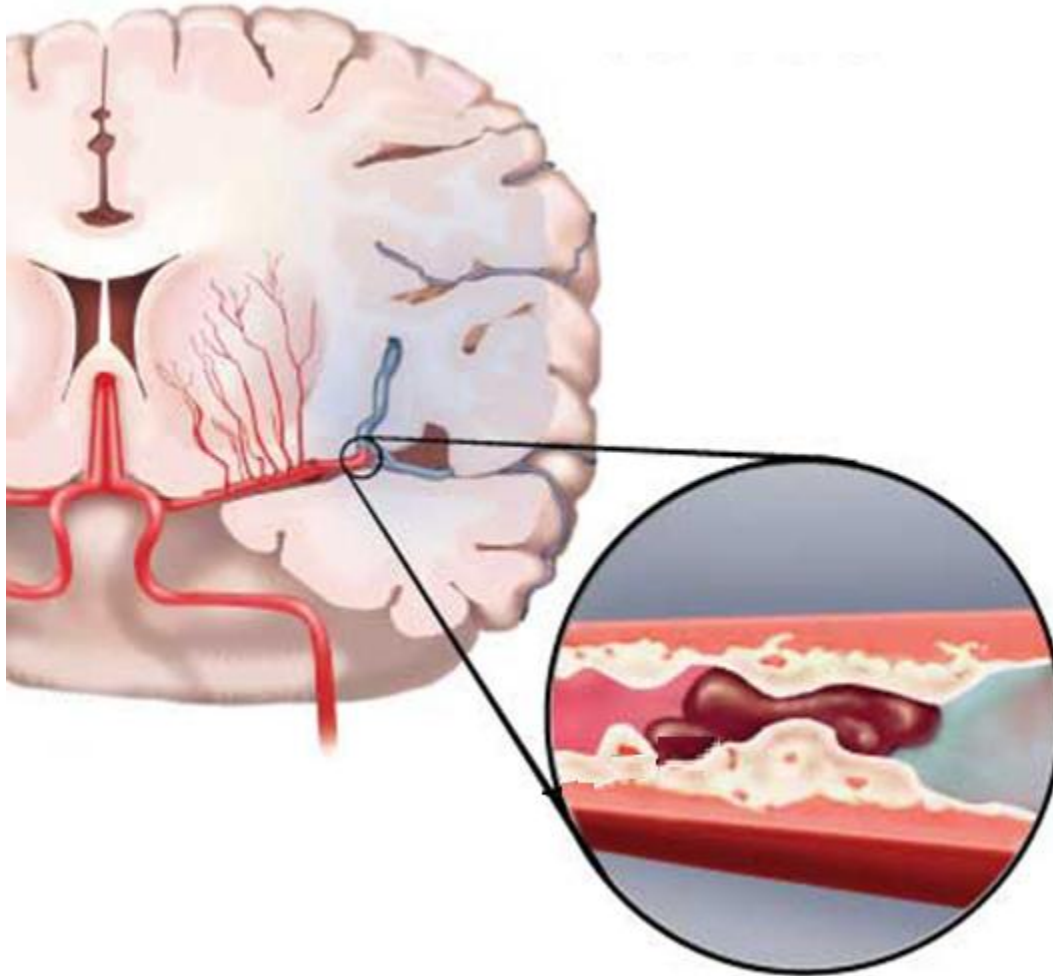
intracranial



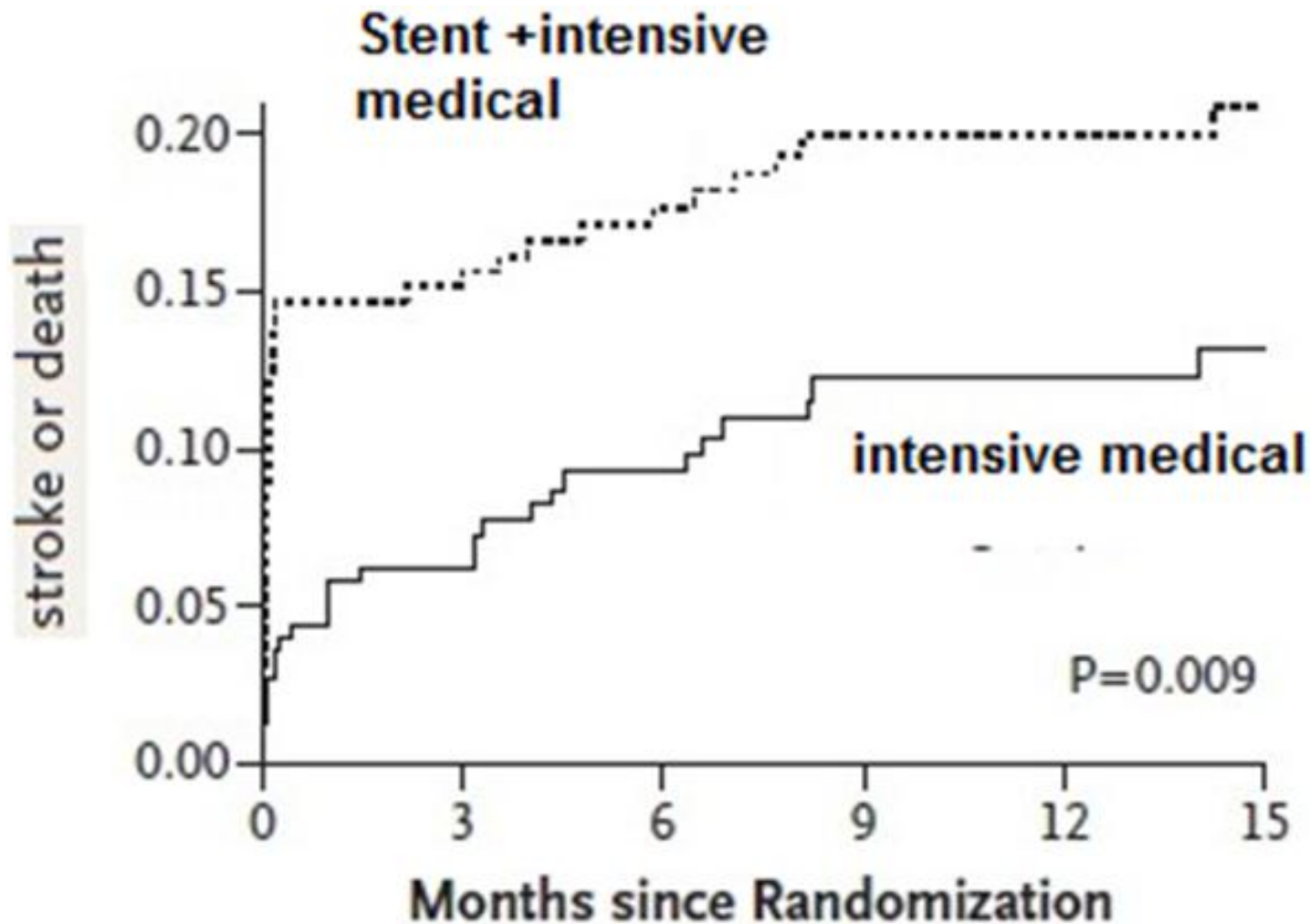
extracranial



Intracranial stenosis



Intracranial stenosis: don't stent



Intracranial stenosis: get intensive!

Stroke from ICAS (recruited <30d, >70%, FU at 1 year)

a) Aspirin (WASID '99-'03)

= 23%

b) Intensive +++ (SAMMPRIS '08-'11)

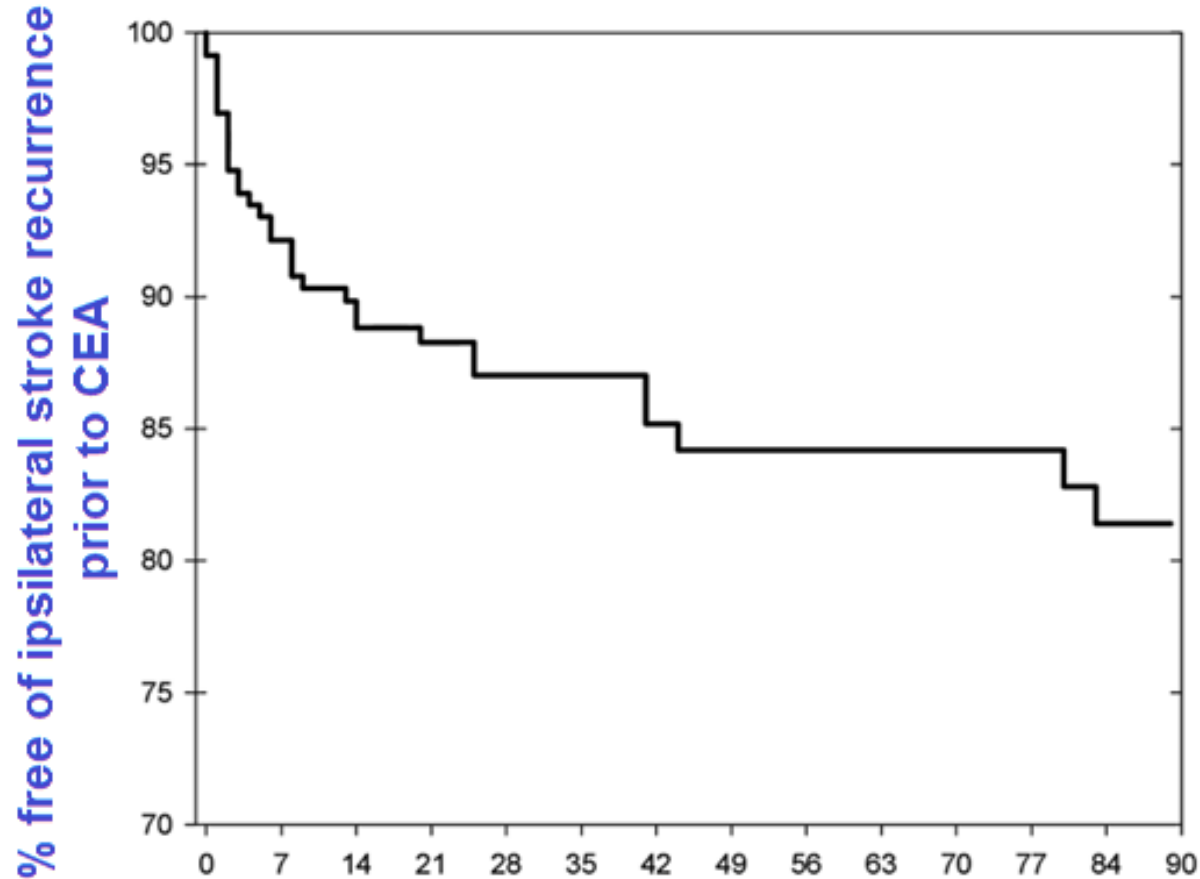
= 10%

57% RRR
(not RCT)

Extra-cranial Atheroma



If endarterectomy is delayed...



48hrs =5%
1 week =8%
2 weeks =11%
3 mths =19%

days after presenting with stroke and ICA stenosis

Very Urgent CEA <48hrs → ↑ Risk

Surgery-related Stroke + death rate

<48hrs	11.5%
--------	-------

3-7day	3.6%
--------	------

8-14day	4.0%
---------	------

8-14day	5.4%
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Extra-cranial Carotid → CEA

Endarterectomies to prevent 1 stroke: NNT

severity

- 5 for 80+%
- 8 for 70-80%
- 16 (men) 50-70%

urgency

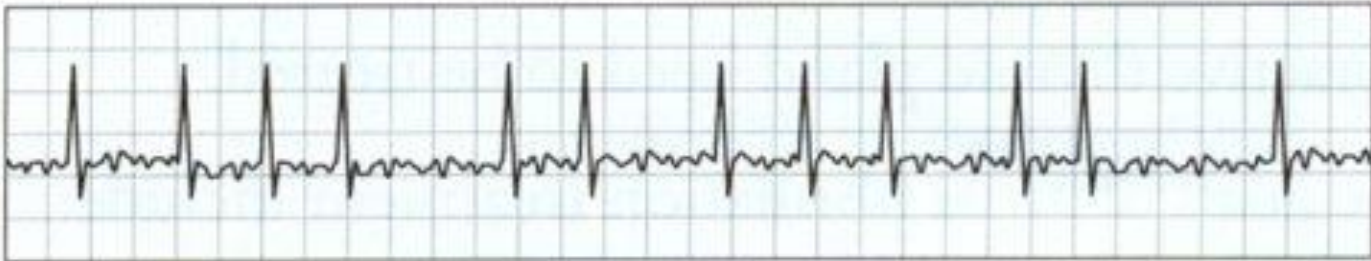
- 125 if surgery >3 months delay
- 6 if surgery <3 months

Extra-cranial: Medical

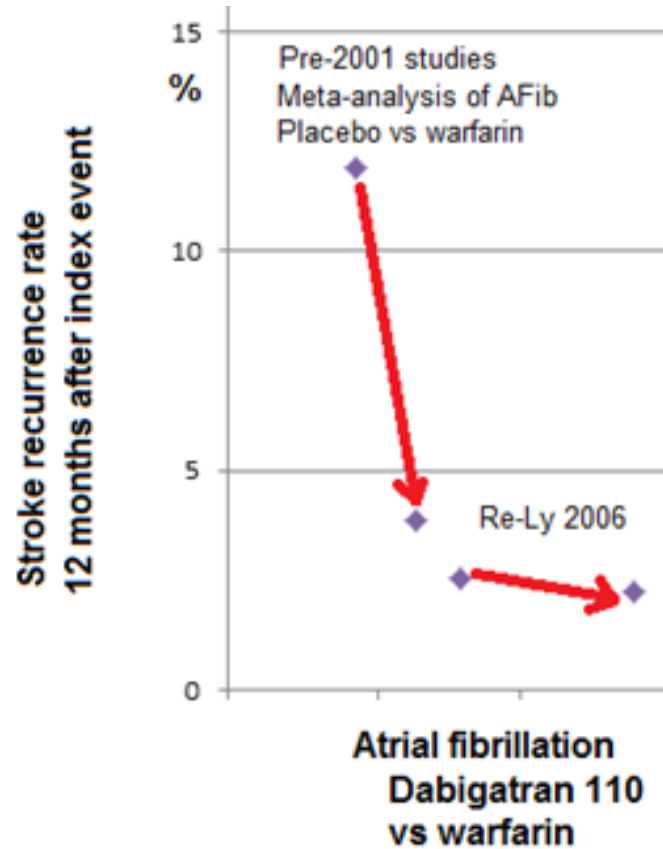
What can we glean from major stroke studies?

- Large Artery + Atorvastatin 80mg = 30% RRR (strokes 18.6→13.1% in 5yr p=0.06)
- PROGRESS = dual BP meds ~135/80 38% RRR ischaemic strokes
- Aspirin+Clopidogrel x 3 months (SAMMPRIS?)

Cardio-embolic stroke



Atrial Fibrillation



Atrial Fibrillation (includes paroxysmal)

1. Dabigatran 110mg bd *after stroke/TIA*
 - Stroke+MI+death 20% less than warfarin
 - Net benefit = 1.61%/yr 110mg versus 0.03% 150mg (mortality ++)
2. Dabigatran 150mg bd for *non-stroke cases*
3. BUT: GFR<30→not Dabigatran, Not reversible, use 110mg if moderate renal

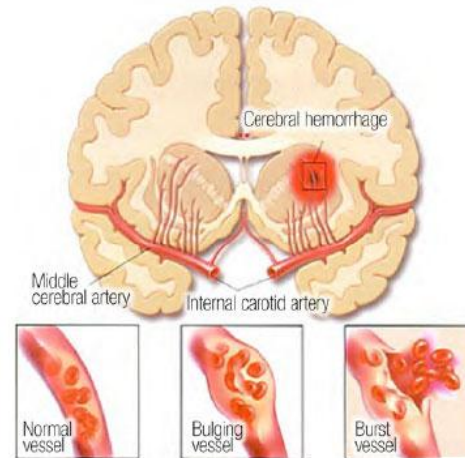
Small vessel strokes

= lower overall risk of recurrence
and different management

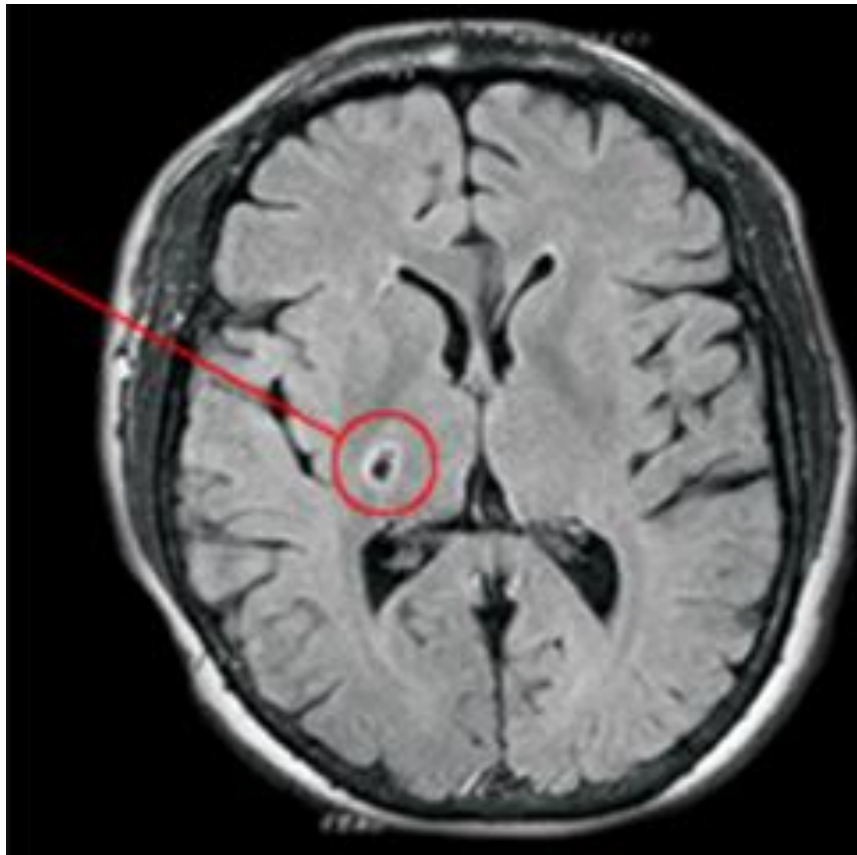
Lacunar



Haemorrhagic



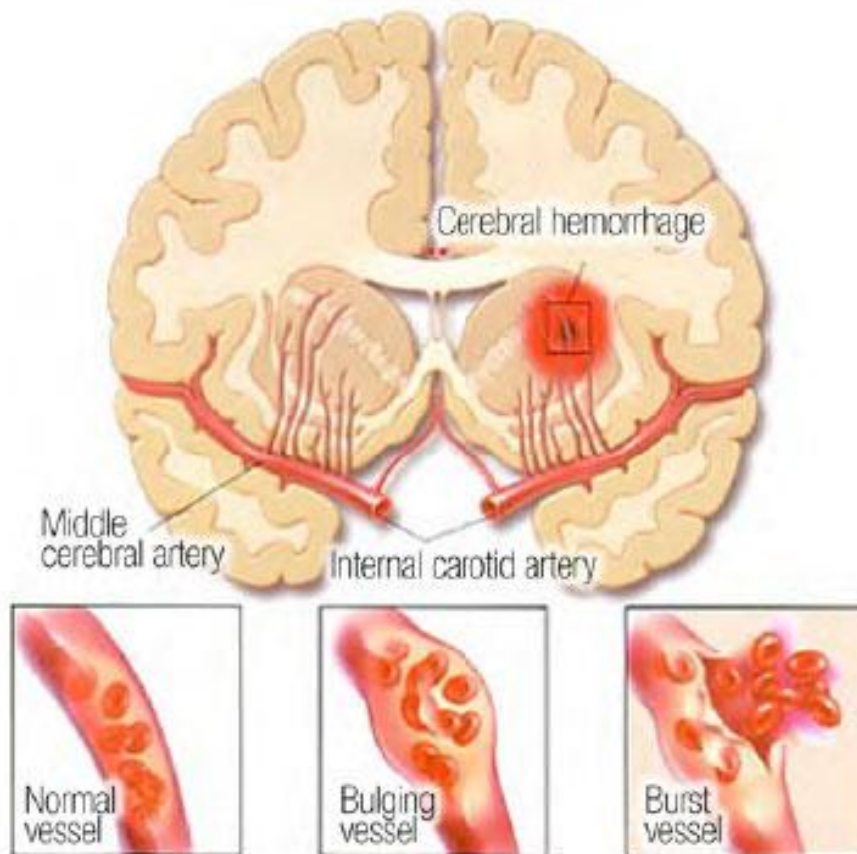
Lacunar stroke



Lacunar stroke: uncertainties

1. **Blood pressure target =127/80mmHg** (SPS3, 2013, OR 0.81 p=0.08)
2. **Aspirin+Clopidogrel short-term if mild** (CHANCE, not longer = SPS3)
3. **Atorvastatin 80mg: OR 0.85 at 5yr p=0.25**
4. **Homocysteine + triple B-vitamins (?↓stroke by 20%)**

Intracranial haemorrhage



Intracranial haemorrhage

1. Stroke after ICH: ACEi and/or diuretic

- After Lobar ICH OR = 0.23 (4%→1%/yr)
- After Deep ICH OR = 0.54 (2%→1%/yr)

2. After any stroke: risk of ICH

- ACEi and diuretic OR = 0.24 for ICH during FU
- Monotherapy no benefit

3. Homocysteine + triple B-vitamins (?↓ stroke by 33%)

Intracranial haemorrhage

Remember to avoid blood thinners unless critical

1. Antiplatelets
2. Anticoagulants
3. SSRIs (serotonin depletion of platelets)
4. NSAIDs
5. Statins (increased recurrent ICH by 4-5x)

Extreme Secondary Prevention?



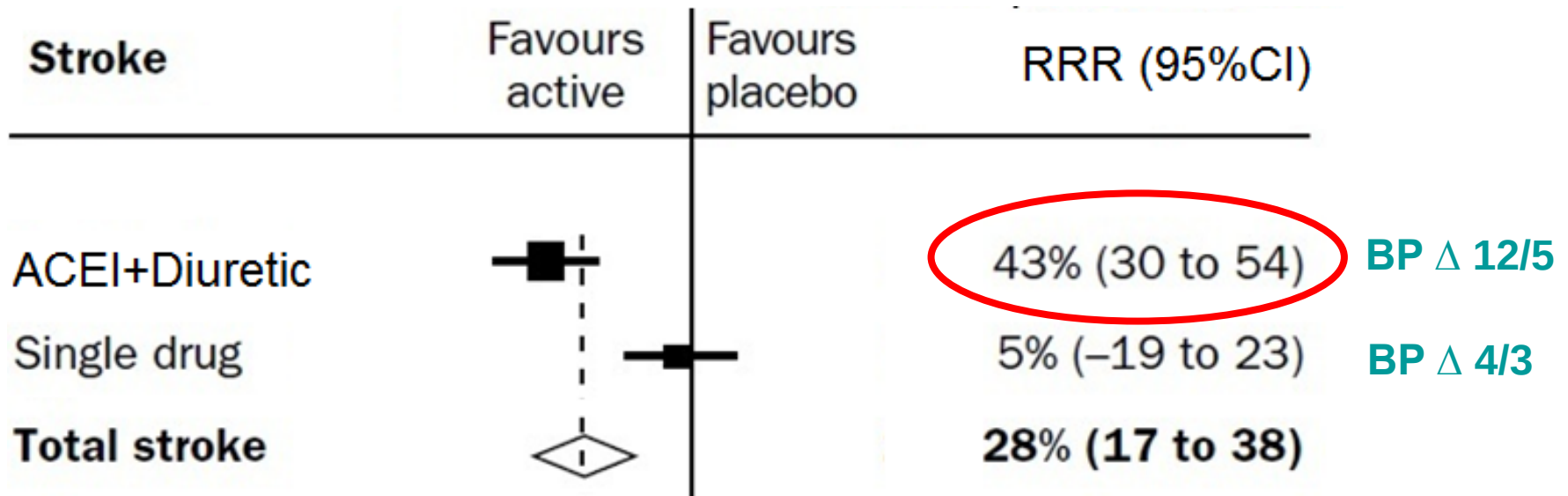
Atorvastatin 80mg → LDL target?

SPARCL study

	OR		5yr strokes
LDL 1.8 to 2.6			
all strokes	1.01	p=0.9	no benefit
carotid stenosis	0.69	p=0.12	16.1 → 11.3%
LDL <1.8			
all strokes	0.72	p=0.002	14.4 → 10.4%
carotid stenosis	0.62	p=0.03	16.1 → 10.7%

Blood Pressure dual treatment?

PROGRESS study



Blood Pressure target mmHg?

PROGRESS = dual ACEi+diuretic; BP 147/86 → 135/80?

- 36% less ischaemic strokes
- 76% less ICH

PROFESS post-hoc analysis; acute patients

- <6 months = best stroke rates = 143/84 → **135/80**
- >6 months = no J-shape curve, aim = 137/82 → **125/76**

Mediterranean Diet

+ extra walnuts daily
may ↓ stroke 46%
c/w low fat diet

