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9:15 - 9:30 Prevention of Stroke

Stroke Prevention

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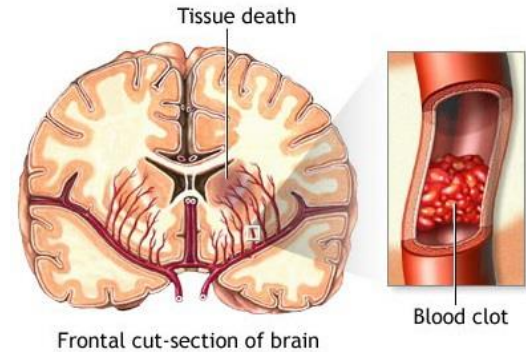
Disclosures

- None

- Update on stroke
 - Key messages
 - Ischaemic issues
 - Haemorrhagic stroke
- Aneurysms and stroke
 - Prevention?
 - Family History
 - Media.....

How important...?

- Very...!!!
- Stroke is the third leading cause of death in New Zealand
 - major cause of disability
 - enormous impact on patients, carers and society.
- About 18,000 people are living with the effects of stroke in New Zealand.
 - This number is projected to double by 2020.



Types

- Ischaemic – what happens...
 - TIA
- Haemorrhagic
 - Many variants
- All can cause neurological deficit
 - Permanent
- Recovery and Neuroplasticity...?
 - Exciting research
 - Neuromodulation
 - Stem cells
- Prevention better...

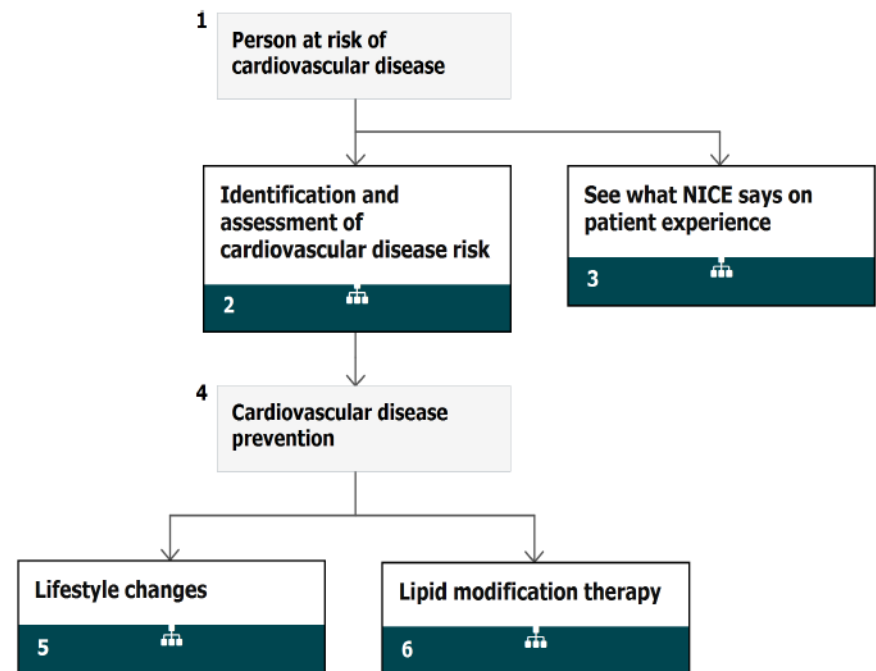
Prevention

- What can I do for my high risk patient...
- What can I do for all patients...
- Determine the risk
- Prevention strategies related to cause
 - Ischaemic cerebrovascular disease
 - Cardiac disease....atrial fibrillation
- Aneurysms

Guidelines

- NICE
- AF
- Cardiovascular risk
- ...not specific to stroke

Cardiovascular disease prevention overview



AHA/ASA Guideline

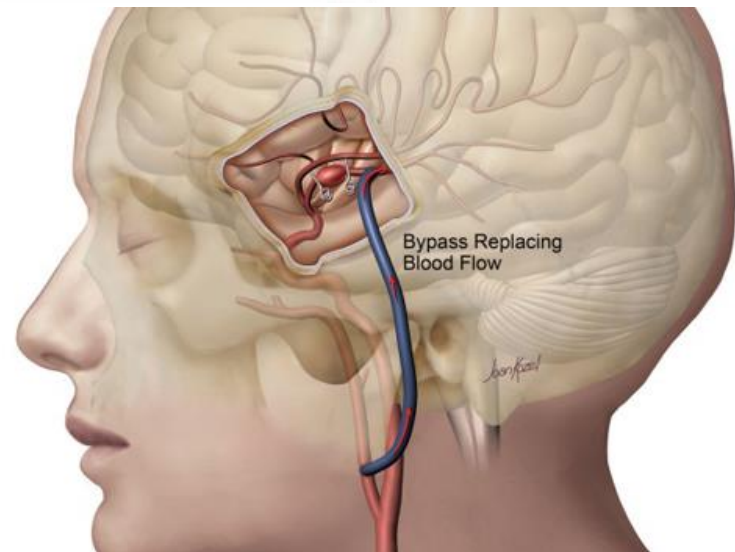
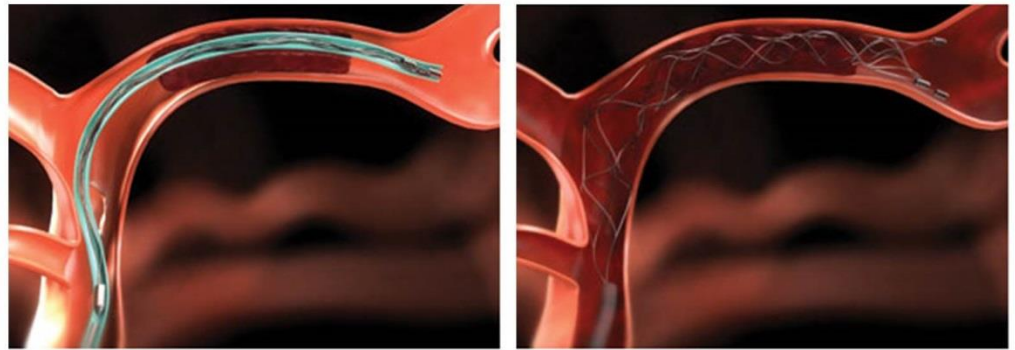
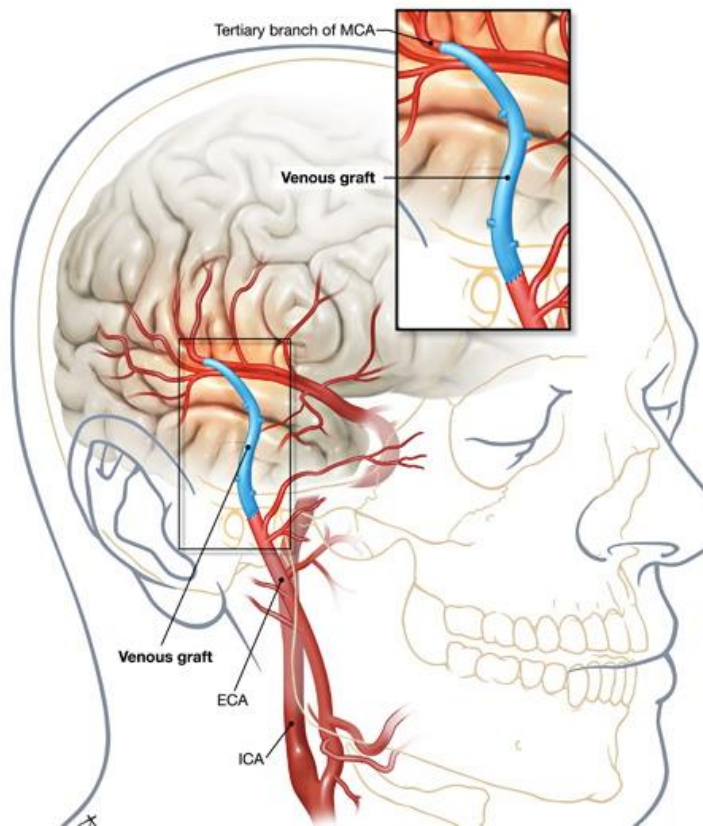
Guidelines for the Primary Prevention of Stroke **A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association**

The American Academy of Neurology affirms the value of these guidelines as an educational tool for neurologists.

Endorsed by the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, and the Preventive Cardiovascular Nurses Association

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- Despite the advent of reperfusion therapies for selected patients with acute ischemic stroke, effective prevention remains the best approach for reducing the burden of stroke.
- Haemodynamic phenomena...
 - Role of Brain Bypass Surgery...?



Assessment of Risk Factors

Modification of modifiable risk factors

Non-modifiable

- Age
- Low birth weight
- Ethnicity
- Genetic, environmental, social, economic, risk factors.....?
 - Genetic
 - A meta-analysis of cohort studies showed that a positive family history of stroke increases the risk of stroke by $\approx 30\%$

Anything to do in the GP clinic....?

- Obtaining a family history
 - can be **useful** in identifying people who may have increased stroke risk
- Genetic screening of the general population for the prevention of a first stroke
 - **not recommended**

Well-studied Modifiable risk factors

- **Physical Activity/Inactivity**

- Physical activity is recommended because it is associated with a reduction in the risk of stroke

- *(Class I; Level of Evidence B).*

- 25% to 30% lower risk of stroke

- **Intensity disputed**

- Healthy adults should perform at least moderate- to vigorous-intensity aerobic physical activity at least 40 min/d 3 to 4 d/wk
 - Fitness trends....

Lipids

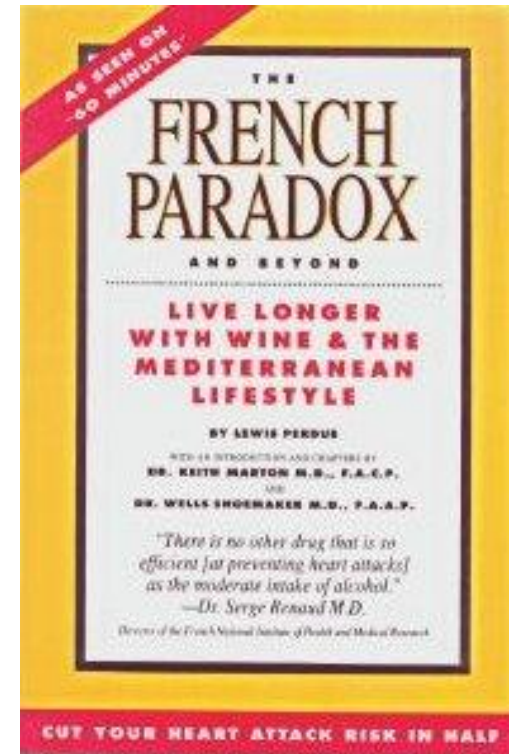
- **Recommendations:**
- **Statins**
 - Give
 - In addition to therapeutic **lifestyle** changes, treatment with an HMG coenzyme-A reductase inhibitor (**statin**) medication is **recommended** for the primary prevention of ischemic stroke in patients estimated to have a **high 10-year risk** for cardiovascular events as recommended in the 2013 “ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults”¹⁶⁹
 - (Class I; Level of Evidence A).
- **Niacin**
 - Consider
 - Efficacy not established

Diet



- Epidemiological studies, interventional studies
 - Methodological flaws
 - **Link with BP or link with stroke.....?**
- **Reduced intake of sodium and increased intake of potassium** are recommended to lower BP
 - (Class I; Level of Evidence A).
- A DASH-style diet, which emphasizes **fruits, vegetables, and low-fat** dairy products and reduced saturated fat, is recommended to lower BP
 - (Class I; Level of Evidence A).
- A diet that is rich in **fruits and vegetables** and thereby high in potassium is beneficial and may lower the risk of stroke
 - (Class I; Level of Evidence B)
- A **Mediterranean diet** supplemented with **nuts** may be considered in lowering the risk of stroke
 - (Class IIa; Level of Evidence B).

Wine



Alcohol, Diet, Exercise

- Male – no more than 3–4 units a day
- Female - no more than 2–3 units a day.
- Avoid binge drinking

– The French paradox....?

- The obvious....
 - Diet – healthy
 - Exercise – do some
 - Smoking – stop

What's the evidence?

- A study of 43 685 men from the Health Professionals Follow-Up Study and 71 243 women from the Nurses' Health Study
- **J-shaped** association for risk of stroke

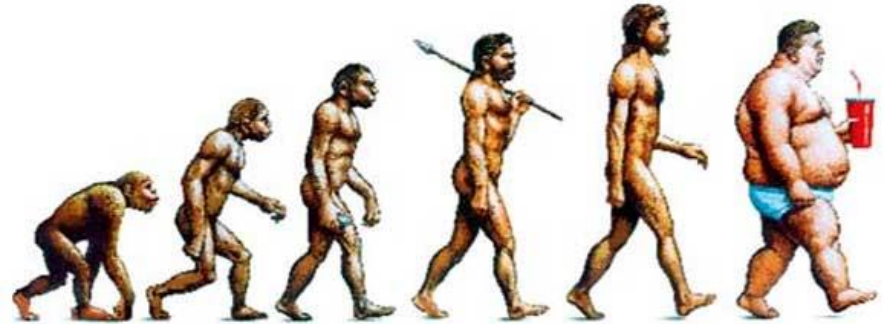
- Which wine....?
- Lots of studies
- Interesting results
- Which of >200 molecular compounds ingredient.....?

Blood pressure Treat....!!!!



- **Regular BP screening and appropriate treatment** of patients with hypertension, including lifestyle modification and pharmacological therapy, are recommended
 - (Class I; Level of Evidence A).
- Patients who have hypertension should be treated with antihypertensive drugs to a target BP of <140/90 mm Hg
 - (Class I; Level of Evidence A).
- Which drug is best?
 - Whichever gets the result....and patient adherence...
 - Successful reduction of BP is more important in reducing stroke risk than the choice of a specific agent, and treatment should be individualized on the basis of other patient characteristics and medication tolerance
 - (Class I; Level of Evidence A).

Obesity Treat.....!!!



- Among overweight (BMI 25-29) and obese (BMI >30) individuals,
 - **weight reduction is recommended for lowering BP**
» (Class I; Level of Evidence A).
- Among overweight (BMI=25 to 29 kg/m²) and obese (BMI >30 kg/m²) individuals,
 - **weight reduction is recommended for reducing the risk of stroke**
» (Class I; Level of Evidence B).

Diabetes



- **Control of BP** in accordance with an AHA/ACC/CDC Advisory to a target of $<140/90$ mm Hg is recommended in patients with type 1 or type 2 diabetes mellitus
 - (Class I; Level of Evidence A).
- Treatment of adults with diabetes mellitus with a **statin**, especially those with additional risk factors, is recommended to lower the **risk of first stroke**
 - (Class I; Level of Evidence A).
- The usefulness of **aspirin for primary stroke prevention** for patients with diabetes mellitus but low 10-year risk of CVD is unclear (Class IIb; Level of Evidence B).
 - **No longer recommended**
- Adding a **fibrate** to a statin in people with diabetes mellitus is **not useful** for decreasing stroke risk

Smoking

- Stop.....simple
 - Not easy....to achieve
- consistent and overwhelming relationship between smoking and **both ischemic stroke and SAH**

Aspirin



- **Not everyone....**
- Aspirin is not useful for preventing a first stroke in low-risk individuals
 - *(Class III; Level of Evidence A)*
- **Targeted use....**
- The use of aspirin for cardiovascular (including but not specific to stroke) prophylaxis is reasonable for people whose risk is sufficiently high (**10-year risk >10%**) for **the benefits to outweigh the risks** associated with treatment.
 - Aspirin is **not useful** for preventing a first stroke in people with **diabetes mellitus** in the absence of other high-risk conditions
 - Aspirin is **not useful** for preventing a first stroke in people with **diabetes mellitus** and asymptomatic **peripheral artery disease**

Atrial Fibrillation

- For patients with **valvular AF** at high risk for stroke,
 - CHADS-VASc score of ≥ 2 and acceptably low risk for haemorrhagic complications,
- Long-term oral anticoagulant therapy with warfarin at a target INR of 2.0 to 3.0 is recommended
 - (*Class I; Level of Evidence A*).
- For patients with **nonvalvular AF**, a CHADS-VASc score of ≥ 2 , and acceptably low risk for haemorrhagic complications, oral anticoagulants are recommended
 - (*Class I*)
 - Options include
 - » warfarin (*Level of Evidence A*)
 - » dabigatran (*Level of Evidence B*)
- For patients with nonvalvular AF and CHADS-VASc score of 0,
 - reasonable to **omit** antithrombotic therapy

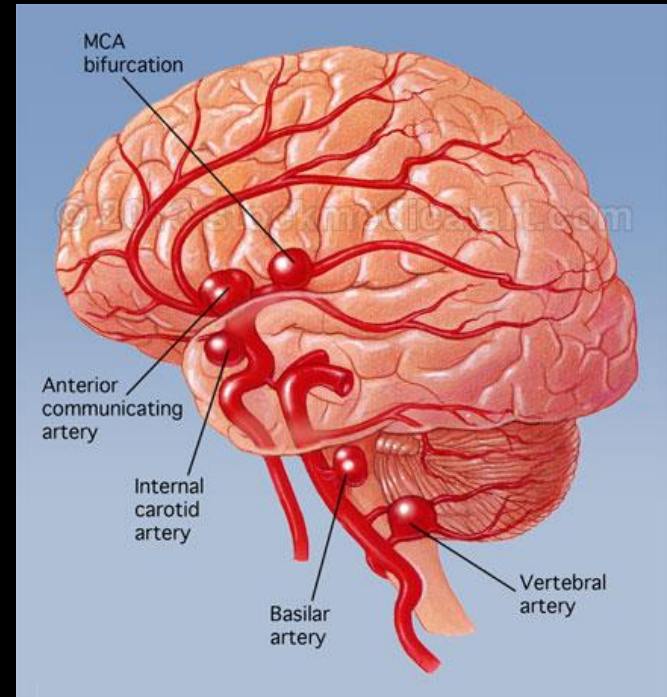
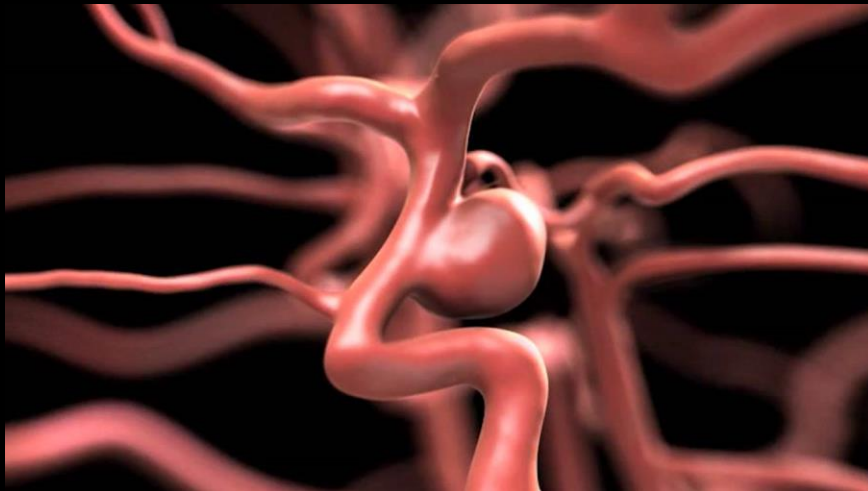
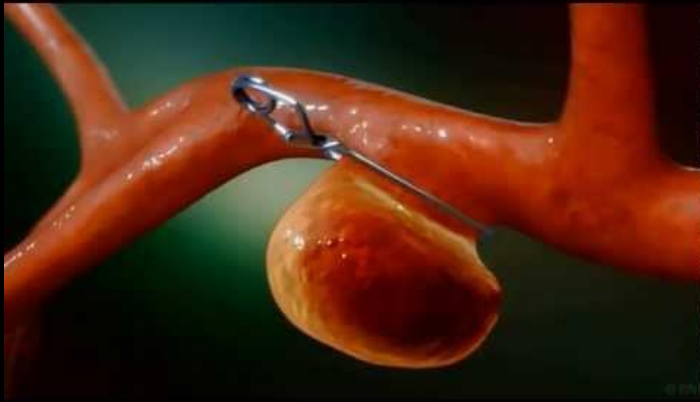
Other cardiac conditions

- Mitral stenosis
- Left atrial thrombus
- Lectures and presentations to follow
- Keep it simple
 - Keep oxygen going to the brain
 - Don't bleed into the brain
 - No sudden changes in BP

What to remember....?

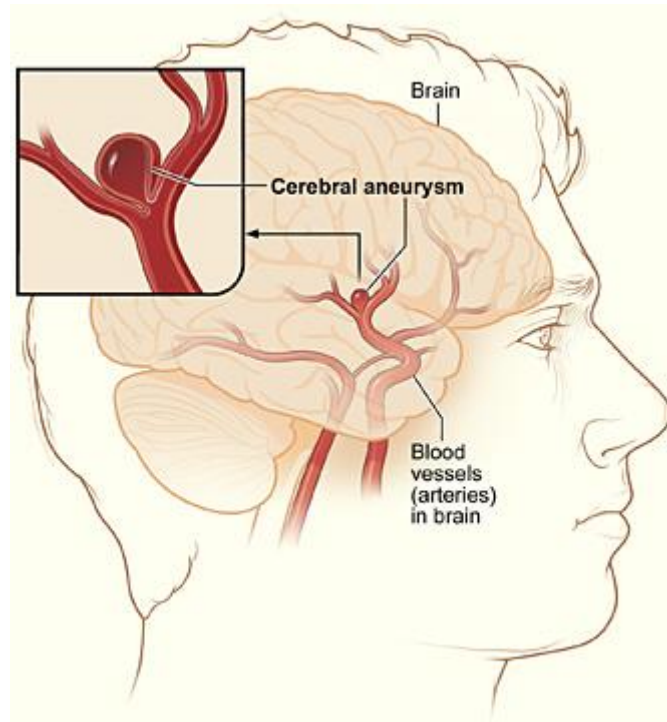
- Prevent.....!!!!
- Lipids
 - Statins
- Diet
 - Healthy
 - Lower sodium intake
- High Blood Pressure
 - Treat...with whatever works...!!
- Obesity
 - Attempt to treat
- Diabetes
 - BP, Statin
- Aspirin for primary prevention not recommended
 - Risks more prominent....
- Stop smoking

Brain Aneurysms



Aneurysms

- Ticking time-bombs...?



- What can we say to a patient who is worried about family history of aneurysm rupture?
- Who should have a scan...?
- When to treat...?
- Celebrity..... Had an aneurysm rupture....it was fatal....
- Can you tell me how to prevent this.....?
- The Incidental finding....
- A real challenge!!!!

Epidemiology

- Incidence difficult to estimate
- Prevalence ca 5%
- Congenital predisposition
- Atherosclerotic/hypertensive

Treatment options

- Analysis and discussion
- Risk of rupture
 - Mortality and morbidity of SAH
- Treatment mortality and morbidity
- Endovascular and microsurgical

How can you contribute to treatment?

- Smoking
- Blood pressure
- “Check in with your doctor regularly...”

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- Noninvasive **screening** for unruptured intracranial aneurysms in patients with ≥ 2 first-degree relatives with SAH or intracranial aneurysms **might be reasonable**
- Might also be reasonable in some other conditions

Take home points

- Assess risk for ischaemic stroke
 - Cardiovascular risk
- Lifestyle modification
- Primary prevention aspirin...probably not the best
- Do have a glass of wine
- Unruptured aneurysms are worth discussing
 - Don't always require treatment

- Supporting documents
- Can email you the recent guidelines papers
- PatrickS@adhb.govt.nz