

stroke (CVA)

see also:

- [ED Mx of stroke](#)
- [stroke patterns](#)
- [thrombolysis in stroke](#)
- [neurology](#)
- [transient ischaemic attack \(TIA\)](#)
- [atherosclerosis and primary prevention](#)
- [intraventricular haemorrhage \(IVH\) in adults](#)
- [NICS care bundle of documents to assist in the ED management of TIA and stroke](#)
- [Vic. DHS - stroke care strategy recommendations \(pdf\)](#)
- [Vic. DHS - stroke care strategy for Victoria \(pdf\)](#)
- [Vic. DHS - clinical networks documents](#)
- [National Stroke Foundation](#)
- [Stroke Society of Australasia](#)
- [Australian Stroke Trials Network](#)
- [Brain Foundation](#)
- [National Stroke Research Institute](#)
- [NIH stroke scoring tool](#)
- [Internet stroke center - stroke scales and assessment tools](#)

patient information sheets

- [Stroke Foundation Australia - stroke information in various languages - English, Arabic, Italian, Greek, Chinese and Vietnamese](#)

epidemiology of stroke in Australia

- 48,000 Australians have a stroke each year, with 70% of these being their first ever stroke.
- 30% who have a stroke, have a further stroke within 1 year
- ~20% (9,000) die within 1 month of a stroke, and 1/3rd die within 12 months
- 78% of all deaths from stroke are in those aged 75yrs and older
- incidence of stroke doubles for every decade after 45yrs age
- stroke is the 3rd largest disease burden in Victoria & 2nd largest cause of years of life lost in women (4th largest in men)
- whilst deaths from stroke and stroke incidence is decreasing, its prevalence is increasing with increased ageing population and increased survival after stroke.
- in Victoria, acute stroke & TIA presentations are expected to increase at 2.7% p.a., while in the > 85yr old age group, it will rise by 5% p.a.
- 20% of ischaemic strokes in young adults is due to [internal carotid artery dissection](#) or [vertebral artery dissection](#)
- 20% of fatal strokes in those aged 15-44yrs is due to psycho-stimulant use, in particular, [metamphetamine / meth / ice](#)

risk factors

uncontrollable

- advancing age
- gender - more common in men
- FH of stroke
 - elevated lipoprotein A (Lp(a)) levels appear to correlate with ischaemic stroke risk and general atherosclerosis risk in some studies although some other studies have not confirmed this ¹⁾
 - plasma level distribution in the general population is highly skewed (90% have serum values less than 300 mg/litre, median is around 80-90mg/L, some have levels above 20,000 mg/L)
 - exhibits a high degree of heritability through kringle isoform transmission
 - low MW isoforms tend to raise Lp(a) levels and correlate more with atherosclerosis and ischaemic stroke than high MW isoforms (almost half of stroke patients have low MW isoforms while only 16% have high MW isoforms)
 - Lp(a) are susceptible to oxidation and subsequent uptake into cells leading to cholesterol formation and foam cells
 - Lp(a) competes with plasminogen for its receptors on endothelial cells, leading to diminished plasmin formation, thereby delaying clot lysis and favouring thrombosis
 - Lp(a) levels rise as part of the acute phase response and also in hypothyroidism, DM, CRF, nephrotic syndrome, cancer, menopause, and with certain medications, possibly including statins (although only slightly)!
 - Lp(a) levels are reduced by hyperthyroidism, liver failure, oestrogens, progestogens, tamoxifen, anabolic steroids, high dose nicotinic acid and fibrates
 - diet does not appear to substantially alter Lp(a) levels
- high homocysteine levels
- high fibrinogen levels

medical conditions contributing risk

- PH TIA
- [atrial fibrillation](#)
- [diabetes mellitus](#)
- [fibromuscular dysplasia \(FMD\)](#)
- [polycythaemia](#)
- [surgery](#)
 - a 2019 Canadian study²⁾ suggests that 7% of those over 65yrs age having non-cardiac surgery have a **covert stroke** and 42% of these patients suffered cognitive decline by 1yr post-op compared with 29% of those who did not have a covert stroke

lifestyle modifiable risk factors

- [hypertension](#)
- [hyperlipidaemia](#)
 - there is a correlation between ischaemic stroke and:
 - elevated total cholesterol

- raised low density lipoprotein cholesterol (LDL)
- raised TG levels
- reduced HDL levels
- high total cholesterol to HDL ratio
- there is a correlation between haemorrhagic stroke and:
 - very low total cholesterol concentrations
- cease smoking
- [obesity and weight management](#) - high BMI increases risk
- diet
 - low salt diet (for reducing hypertension)
 - low saturated fats
 - eating nuts (ideally should be unsalted, raw fresh nuts) two or more times per week was associated with a 17% lower risk of cardiovascular mortality compared to consuming nuts once every two weeks according to a 2019 Iranian study ³⁾
 - “Nuts should be fresh because unsaturated fats can become oxidised in stale nuts, making them harmful. You can tell if nuts are rancid by their paint-like smell and bitter or sour taste”
- lack of exercise increases risk
- [alcohol](#) > 6 drinks per day appears to have increased risk
- see [cardiovascular disease risk factor calculator](#)

primary prevention

- control risk factors: (see also [atherosclerosis and primary prevention](#))
 - [hypertension](#)
 - The UK TIA study concluded the variability in the systolic blood pressure was a strong predictor of stroke. The combination of calcium channel blockers and non-loop diuretics were associated with greatest reductions in systolic BP ⁴⁾
 - combined therapy with an [ACEI](#) and non-loop diuretic can reduce vascular events by 40% in 4 years with a mean reduction of blood pressure by 12/5 mmHg ⁵⁾
 - smoking
 - [diabetes](#)
 - [hyperlipidaemia](#)
 - statins appear to reduce risk of stroke by 20-30%
 - in patients raised TG levels, fibrates appear to reduce stroke by ~25% and reduced TIAs by ~50% ⁶⁾
 - [obesity and weight management](#)
 - high plasma fibrinogen
 - [excessive alcohol intake](#)
 - [polycythaemia](#)
 - [combined oral contraceptive pill \(OCP\)](#)
 - life long [anticoagulant](#) Rx for those with rheumatic or prosthetic heart valves on left side
 - consider [anticoagulation](#) in pts with chronic [AF](#)
 - see [antithrombotic Rx for prevention of stroke](#)
 - no advantage of strict rate control (HR < 80) vs “lenient” rate control of HR < 110 in patients with AF for prevention of stroke, but strict rate control still advocated for those with recurrent symptoms or tachycardia cardiomyopathy ⁷⁾
 - AV nodal ablation rate has a low complication rate regardless of co-morbidity and should be considered for all patients with AF undergoing cardiac resynchronisation

treatment and also to those who have rapid ventricular response despite medical therapy and are at risk of drug induced complications.⁸⁾

- consider [anticoagulation](#) in pts with mural thrombus post [acute myocardial infarction \(AMI/STEMI/NSTEMI\)](#)
- consider aspirin 75mg/day if benefits outweigh risks:
 - eg. women aged 55 to 79 yrs if benefit outweighs risk of GIT haemorrhage⁹⁾

secondary prevention

- see [Mx of TIA](#)

1) , 6)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1731226/pdf/v053p00487.pdf>

2)

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)31795-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)31795-7/fulltext)

3)

<https://www.escardio.org/The-ESC/Press-Office/Press-releases/eating-nuts-linked-with-lower-risk-of-fat-al-heart-attack-and-stroke>

4)

Lancet 2010; 375:895-905 and Lancet 2010; 375:906-915

5)

PROGRESS Collaborative Group. Lancet 2001;358:1033-1041.

7)

RACE II trial N Engl J Med 2010

8)

JAMA 2005;293:2634-40

9)

[Aspirin for the Prevention of Cardiovascular Disease: U.S. Preventive Services Task Force Recommendation Statement - March 2009](#)

From:

<http://www.ozemedicine.com/wiki/> - **OzEMedicine - Wiki for Australian Emergency Medicine Doctors**

Permanent link:

<http://www.ozemedicine.com/wiki/doku.php?id=stroke>

Last update: **2019/08/31 22:36**

