BEST PRACTICE

26

MARCH 2010

Are you a winner? Look inside!

OLDER PEOPLE'S HEALTH:
Falls, Driving rules,
Antipsychotics in dementia

STROKE:
Emergency treatment,
Secondary prevention

bpac nz
better medicine

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CONTENTS

CONTENTS

Supporting the PHO Performance Programme

CONTENTS

Essentials

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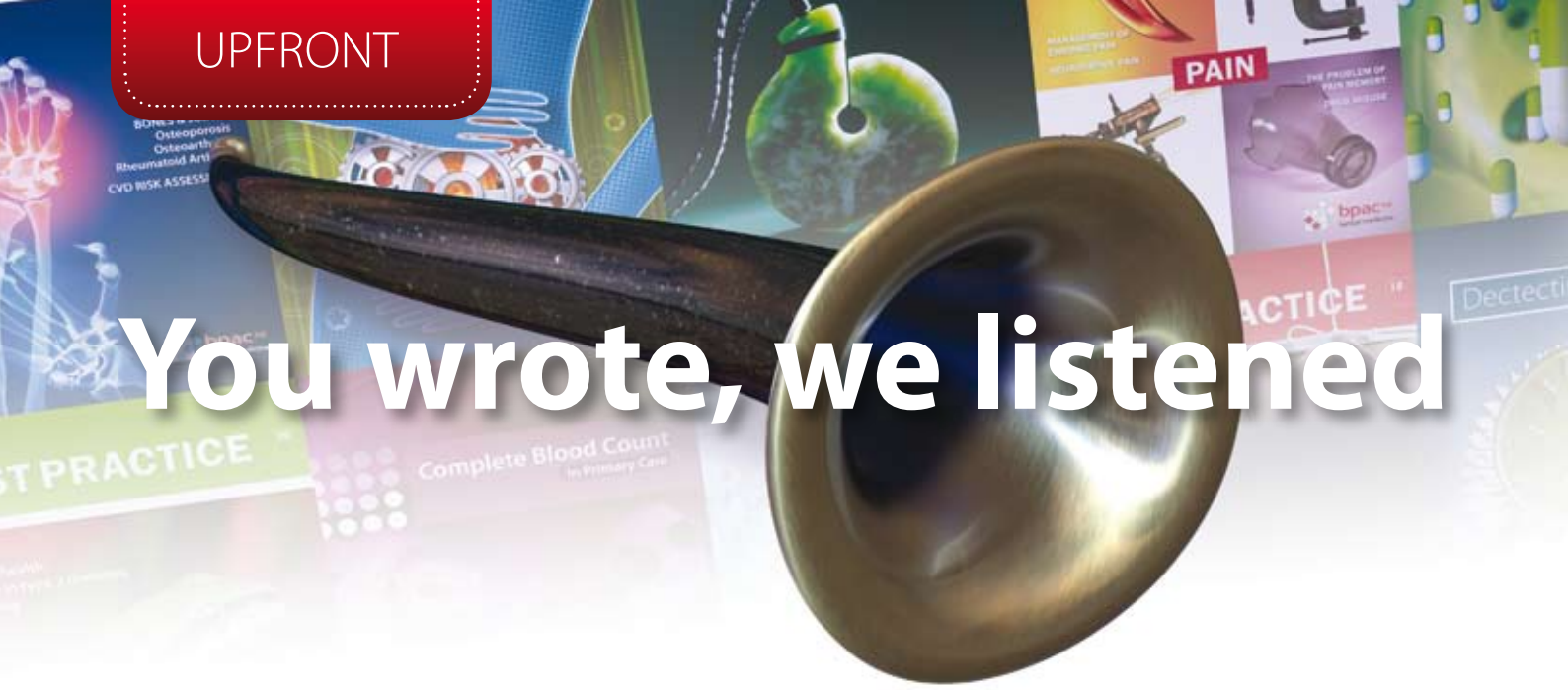

You wrote, we listened

A SINCERE THANK YOU to everyone who contributed to the end of year bpac^{nz} survey. We had an overwhelming response (over 1500 responses to date) and we are currently analysing the results, but here is a sneak peek...

You think we've got it about right

The majority of respondents (82%) described the current volume of material sent to them by bpac^{nz} as "about right".

"There is enough time to read and digest the journal and then look forward to the next delivery."

"I look forward to getting the bpac publications; if life is busy they feel quite frequent and I may not get to thoroughly read them, but I always keep them for reference."

"Just right, if the volume is increased, it will decrease my likelihood of keeping up."

15% were leaning towards "too much"

"Please don't send things just before Christmas."

and only 3% thought it was nearing "too little."

"Good amount but I would still read and make use of more info."

Just the way we are

It is good to know that 82% of respondents think that we should have no change to the current volume and frequency of material. Smaller publications, more often were favoured by 11% and larger publications less often favoured by 8%.

You trust our material

Out of a score of 1 to 5 (where 5 is very high), bpac^{nz} resources received an average of 4.5 for quality and 4.2 for trustworthiness.

"A very worthwhile publication that provides well written articles that keeps those in clinical practice up to date."

"Excellent quality of service, sensible, practical, cost-effective, best bang for medical buck."

...and find it useful

On average, Best Practice Journal was rated 4.5 out of 5 for usefulness and Best Tests 4.2 out of 5.

"It is interesting and easy to read and understand. Great colour and design, keeps the other side of the brain interested too."

"I wish the journal had been around when I was starting out in general practice."

GPs rated both personalised reports and clinical audits an average of 3.8 out of 5 for usefulness. Some commented on the frustration of the data not appearing to accurately reflect their clinical practice. We would like to improve on this and will be investigating ways in which we can present data even more usefully.

"The demographics of the 'average GP' don't apply to the average GP."

CME quizzes were rated an average of 3.9 out of 5 and patient information 4.0.

BPJ – the smart reading choice!

The overwhelming majority of respondents read bpac^{nz} publications to keep their medical knowledge up to date (98%) and for continuing professional development (91%).

No barriers to reading bpac publications for most

Most respondents do not have any barriers to reading bpac material. Of those who cited barriers, finding time to read the publications was the most common.

"I always find the information useful, the problem is finding the time to sit down and read it."

"Barriers are more about my life than your content."

Wish list

We received some great suggestions for products or services that bpac may consider providing in the future, including:

Seminars, CDs, podcasts, electronic newsletters, online peer support group, software for adverse reaction reporting, audit of professional standards, New Zealand formulary, pharmacist and nurse versions of BPJ, complementary medicine section, case scenarios, downloadable patient resources, query service for medical questions.

And thank you to the person who suggested that we should provide our readers with bookcases to store all our publications in!

And the winners are...

The ten lucky recipients of a $200 gift voucher are:

1. Sara Arslanova, Porirua
2. Yvonne Asher, Dannevirke
3. Simon Church, Christchurch
4. Byrdie Johnston, Rotorua
5. Hine Laughlin, Opotiki
6. Mamnunur Mamun, Auckland
7. Christine Montgomery, Helensville
8. Craig Pelvin, Dunedin
9. Mike Tombleson, Taupo
10. Richard Watt, Kingsland

If you are a winner we will be contacting you soon to select your choice of voucher.

The final word

We like this...

"Bpac provides an excellent service, there are limitations but you cannot be all things."

Falls in older people: **causes and prevention**

www.bpac.org.nz keyword: falls

Falls are common in older people and can result in considerable morbidity

Approximately one-third of people aged over 65 years fall each year.[1] Half of all ACC claims and costs in this age group are the result of falls.[2] People aged in their nineties are particularly at risk of falling, lying for long periods afterwards and subsequently being admitted to hospital.[3]

Of those people aged over 65 years that fall:[2]

- 22–60% suffer injuries
- 10–15% suffer serious injuries
- 2–6% suffer fractures
- 0.2–5% suffer hip fractures

Falls resulting in fractures are more common in residential care and hospitals, with about 10–20% of falls leading to a fracture.[4]

Key concepts:

- Falls are common in older people and can result in considerable morbidity
- Enquire about whether older people have fallen in the last year
- Management is guided by the cause of the fall
- Interventions to prevent falls include strength or balance training, medication review, vitamin D supplementation, vision assessment and correction and home hazard assessment and modification

Why do older people fall?

Causes of falls in older people are often multifactorial.

Risk factors for falls include:[1]

- Lower limb weakness
- History of falls
- Gait or balance disorders
- Functional and cognitive impairment
- Visual deficits
- Depression
- Polypharmacy

Polypharmacy (i.e. the use of four or more medicines) increases the risk of falls, particularly the use of sedatives, antidepressants, antihypertensives, antiarrhythmics, anticonvulsants and diuretics.[2]

Environmental hazards (e.g. poor lighting, loose carpets, and lack of bathroom safety equipment), dizziness, vertigo, drop attacks, postural hypotension and syncope can also lead to falls.[5]

Older people should be asked whether they have fallen in the last year

If a fall has not resulted in an injury requiring medical attention, the patient may never think to disclose this information. Enquiring about whether older people have fallen in the last year is a useful screening tool.

Exclude acute causes of falls

If an older person reports a fall has occurred, it can be a marker of underlying acute illness. Obtain a description of the circumstances in which the fall occurred e.g. a stumble or trip and any symptoms associated with it such as light-headedness or chest pain. Consider possible underlying medical problems. This can help work out what happened and whether the fall was “hot”, associated with a medical event, or “cold”, more likely due to multiple less acute factors.[6]

Some older people who fall will be anaemic from acute or chronic blood loss, have had a myocardial infarction (MI), have influenza, have a urinary tract infection (UTI) or be

constipated. Acute illness can be masked in older people and falls are an important marker of underlying disease states. The aim is to address any acute medical condition and then select the most successful strategy to prevent a future fall.[4]

Also consider the presence of possible risk factors for falling and how often the person has fallen.

Assess balance, gait and blood pressure

Balance and gait can be examined using the "Get Up and Go" test. Ask the patient to stand up from a chair, walk three metres, turn around, walk back and sit down.[7] Observe the patient, looking for unsteadiness and difficulties performing the test, which will indicate the need for further assessment. Timing the test increases sensitivity.[1] Patients who take longer than 30 seconds to perform the test are likely to have impaired mobility and are at high risk of falling.

Examine power to identify specific problems distinct from generalised mild weakness and frailty associated with disuse and ageing. Arthritis is a common risk factor for falls and if present, management of a painful joint and associated muscle weakness should be addressed.

Measure sitting and standing blood pressure to exclude postural hypotension.[4]

Target fall prevention interventions to individuals

Interventions to prevent falls include:[8]

- Strength or balance training, specifically the Otago Exercise Programme and Tai Chi
- Medications review, particularly aiming to reduce psychotropic medications
- Vitamin D supplementation for everyone in residential care and those in the community at high risk of vitamin D deficiency e.g. low level of sun exposure
- Vision assessment and correction
- Home hazard assessment and modification

Interventions that are targeted to individual risk factors are generally more effective than those applied as a "standard package".[9]

Strength and balance training

Older people often have a dramatic loss of muscle strength. Some of this loss may be attributed to normal ageing however some is due to decreasing physical activity. This loss of lower limb strength increases the risk of falling.[10] A reduction in balance control may also occur due to various age-related sensory and motor changes, further increasing the risk of falling.[10]

Exercise programmes that target lower limb strength and balance reduce the rate and number of people falling. Exercising in supervised groups, participating in Tai Chi, and carrying out individually prescribed exercise programmes at home are all effective.[8]

Tai Chi, which contains elements of strength and balance training is effective but may be less suitable for frail older people at high risk for falls.[9] The evidence is strongest for balance retraining.[1] ACC funds Tai Chi classes for older people throughout New Zealand.

For information about ACC funded Tai Chi classes visit: **www.acc.co.nz** and enter **"tai chi nz"** in the website search box.

The Otago Exercise Programme (OEP) is delivered by a physiotherapist or nurse trained in its use and consists of a series of leg strengthening and balance retraining exercises that get progressively more difficult as the person gets stronger. This is also combined with a walking plan.[2] The OEP has been shown to reduce falls and fall

related injuries by about one-third in older people living in the community.[10] There are providers of this programme throughout New Zealand. ACC no longer funds the OEP for new participants, however the programme is still available through alternative funding sources in some areas. Patients may require a referral.

Review medications

Medication is a modifiable risk factor for falls.[7] Drugs which have adverse effects that can contribute to falling (e.g. drowsiness, decreased postural reflexes, extrapyramidal symptoms) are potentially inappropriate for older people. Polypharmacy and age related changes in drug metabolism can increase the frequency and severity of these adverse effects.[11]

A recent meta-analysis found that antidepressants increased the risk of falling.[12, 13, 14] Other psychotropic drugs were also associated with increased risk including benzodiazepines, other sedatives, hypnotics and antipsychotics. Quetiapine is an antipsychotic with significant hypnotic, sedative and hypotensive effects. With respect to falls risk, quetiapine is not a safer alternative to other psychotropic drugs (also see page 30). The concomitant use of several CNS drugs should be avoided.[13]

Older people may require antidepressants and other psychotropic drugs for specific indications, but their use should be reviewed regularly. Withdrawing psychotropic medications has been shown to reduce the risk of falling.[8] However many people have difficulty being withdrawn from these medicines and restart them.[1]

Sleeping medications (i.e. sedatives or hypnotics) seem to be the most difficult to stop. Gradually reducing medication and providing advice and alternative strategies to enhance sleep such as sleep compression can be effective in reducing falls.[15] Sedatives or hypnotics are often not essential and in many cases the best option is not to initiate these in older people.[16] If these medications must be used, prescribe them at the lowest effective dose for the shortest possible time, and ensure the patient knows that they are not to be used long-term.

For more information about enhancing sleep and sleep compression see "Managing insomnia" BPJ 14, June 2008.

Vitamin D supplementation

Low serum 25-hydroxyvitamin D concentrations in people aged over 65 years are associated with an increased risk of loss of muscle strength and muscle mass and hip fractures. Vitamin D supplementation may improve bone mineral density and muscle function and reduce the risk of falls.[9, 17, 18]

Vitamin D supplementation at doses of 700–1000 IU a day reduces the risk of falls however, lower doses may not.[19]

It is recommended that older people living in residential care take Vitamin D supplementation. Older people in the community who are frail, have a chronic condition or limited mobility may also benefit from Vitamin D supplementation.[18] The recommended dose is 2 x 50,000 IU tablets (2.5 mg) Vitamin D3 in the first month followed by 1 x 50,000 IU tablet (1.25 mg) Vitamin D3 per month thereafter.

N.B. Vitamin D3 = Cholecalciferol

Calcium is no longer recommended at high dose as a longstanding trial of high dose supplementation showed an excess of vascular events.[20, 21] Aiming to achieve a calcium intake of approximately 1 g/day seems to be a reasonable strategy for older people. This can be achieved by enhancing dietary calcium and taking no more than 500 mg of supplementary tablet based calcium.[21]

Vision assessment and referral

Older people with visual impairment are more likely to fall than those with normal sight. Poor contrast sensitivity,

altered depth perception, reduced visual fields and poor distance vision are associated with falls.[22] However there is conflicting evidence about the effect of vision assessment and correction on reducing the rate of falls. In one study, referral for ophthalmology treatment, mobility training and the use of white canes increased the rate of falls. This was possibly due to an adjustment period required to adapt to new glasses.[23] Patients who receive major changes to prescription lenses should be extremely careful while adjusting to them.[22]

Wearers of multifocal glasses are at increased risk of falls because, when objects on the ground are viewed through the lower segment of multifocal glasses, vision can be blurred and depth perception can be impaired.[24]

Falls are reduced in people who have their first cataract surgically corrected.[8]

Home hazard assessment and modification

Home assessment and modification reduces the risk of falls, particularly for those discharged from hospital and for those with a history of falling.[25] This is best provided by an experienced occupational therapist who can organise modifications through publicly funded services. These can be as extensive as new stairs or as simple as mat removal and installation of rails. Home hazard assessment and modification is available via referral through older people's services at all DHBs. A limited number of occupational therapists offer this service privately.

Cardiac pacemaker

Insertion of a pacemaker reduces falls in people with frequent falls associated with carotid sinus hypersensitivity. This condition is rare and difficult to detect accurately, requiring 24 hour Holter monitoring, tilt table assessment and carotid massage under controlled conditions. If carotid sinus hypersensitivity is suspected refer to a falls or cardiology service for diagnosis and management.

Acute management of an older person who has fallen

Management of a fall depends on the type of fall. Falls can be categorised into four groups:

1. Falls contributed to by **external factors** account for about 20% of falls. These factors include wet floors, ice, ladders, unseen objects or poor lighting.
2. Falls from **loss of consciousness** account for about 5% of falls. They are not usually categorised as an accidental fall but are defined by the cause of the fall. The most common causes are myocardial ischaemia or infarct (MI), aortic stenosis, hypotension, arrhythmia, syncope and epileptic seizure.
3. Falls associated with **acute illness** are known as **hot falls**. Serious illness can present non-specifically in people aged over 75 years, and a fall may be the first sign of this. Common causes of hot falls include gastrointestinal bleed, silent MI, stroke, infection, delirium, dehydration, medication toxicity or interaction and faecal impaction.
4. Falls that occur in the **absence of serious illness or loss of consciousness** are known as **cold falls**. While cold falls may involve an external cause, it is usually very hard to find a distinct cause for them. Falls prevention research often focuses on this type of fall.

To determine the type of fall that has occurred, it may be useful to ask the patient, or a witness, the following questions:

- What activities were involved when the patient fell? e.g. reaching, climbing, carrying, use of mobility aids (wheelchairs, walkers) or involvement of other people?
- Were there external factors involved? e.g. wet floors, cords, mats, ladders, furniture, doors?
- How were they feeling just before and during the fall? e.g. feeling faint, chest pain, confusion, weakness?
- What happened after the fall? e.g. could they get up, were they aware of their surroundings?

Also consider the presence of medical conditions that predispose to falls and medications used. Ask about the person's fear of falling and the effect this is having on functional ability.

Physical examination includes the assessment of:

- Vision
- Gait and balance
- Lower leg strength
- Neurological system, especially proprioception, coordination and mental status
- Cardiovascular system, especially heart rate, rhythm and murmurs, sitting and standing blood pressure

Management

Management of falls contributed to by external factors involves treating any injury, and depending on the type of external factor, arranging for completion of a home hazard assessment.

Falls due to loss of consciousness are acute medical emergencies and need more in-depth assessment. Once the condition causing the fall has been identified, it will require specific management strategies.

Falls due to acute illness (hot falls) require clinical evaluation to ensure there is no serious acute threat to health. If you suspect the patient to be unwell or not at their baseline functional status, then following a history and physical examination, suggested investigations include CBC, electrolytes, creatinine and blood glucose, MSU for culture, ECG if silent ischemia is suspected and chest x-ray (if short of breath or cough which might suggest pneumonia or congestive heart failure).

Management of a hot fall focuses on treatment of underlying illness followed by implementation of falls prevention strategies.

Management of cold falls relies on implementation of falls prevention strategies.

Discuss with patients the suitability of a medical alarm and an emergency strategy if a fall should take place e.g. call for help, keep warm, move to a soft surface, find something to pull themselves up with.

Interventions for older people in hospitals and residential care

Prescription of vitamin D reduces falls. All people in residential care should be taking vitamin D3, 50,000 IU monthly. Review of medications may also reduce falls. There is no evidence that other interventions targeting single risk factors, including exercise, reduce falls in people in residential care.

Interventions targeting multiple risk factors are not clearly effective for patients in residential care. Several successful trials in Europe have included strength and balance retraining, medical and medication review, environmental checks and staff education.[26, 27] However further research is needed in New Zealand before these measures are widely recommended. Trials of interventions that are of low level intensity and seemingly sensible have not been successful in reducing falls in New Zealand residential care.[28, 29]

Dementia and falling

People with dementia are at increased risk of falling compared to those without cognitive impairment.[30] Interventions to reduce falls should be the same for people with dementia, as for other older people, taking into account cognitive impairment.[30] However reducing falls in those with dementia is difficult and interventions that would have been expected to be successful have failed to reduce falls in this population.[31]

Some points to consider include:

Medication review. People with dementia may require drug therapy to treat depression or psychosis and these drugs often affect balance, gait and cognition and increase the risk of falls. While there are times when these medicines are necessary, consideration should be given to managing the patient in other ways initially, such as managing physical symptoms (e.g. pain, hunger) and environmental problems (e.g. noise, boredom). When drugs are used they should be reviewed regularly and used for the shortest time possible.[30]

Physical restraints. There is evidence to show that physical restraints do not reduce falls and may in fact increase the rate of injurious falls.[30] Managing difficult behaviours associated with dementia should be addressed with environmental and patient centred strategies (e.g. behaviour charts to identify triggers, increasing participation in activities, increased physical activity, staff education) rather than restraints.

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DRIVING, MISS DAISY?

Driving rules and assessment for older people

Key concepts:

- Older people should be regularly assessed for their fitness to drive, especially when their medical conditions or medications change
- A medical certificate is required for driver licence renewal in people aged over 75 years
- If GPs are uncertain about a patient's fitness to drive, they may refer them to an occupational therapist trained in driving assessment
- Prepare patients early for the possibility that they may become unfit to drive at some point in the future
- There are several transport subsidies available for older people; make sure patients are aware of these options

Age-related factors can impact on driving ability

Older age itself is not a contraindication to driving, with thousands of licence holders in New Zealand aged over 90 years. However the incidence of medical conditions that can affect safe driving increases with age, e.g. dementia, stroke and cardiovascular disease. Other age-related factors that may impair driving include earlier onset of fatigue, slowed responses, visual problems, impaired cognitive function and impaired mobility.

In New Zealand, the two main causes of fatal crashes in 2008 were loss of control (40%) and driving too fast for the conditions (34%). Illness or disability was attributed as the cause of 6% of fatal crashes. Of these incidents, one-third were due to illness with no warning and another third to impaired ability due to old age.[1]

Being able to drive is extremely important for many older people, allowing them to remain independent and mobile. However holding a driver licence is not a right and the balance must be made, between retaining quality of life for the older person, and keeping them and others safe on the roads. Primary care plays an important role in helping to recognise when the time has come to review the driving ability of an older person.

Driver licence renewal process for older people

In New Zealand, a driver licence is valid for ten years up to the age of 75 years. After this, a licence is valid for five years only, then must be renewed every two years over the age of 80 years.

A medical certificate is required for driver licence renewal in people aged over 75 years and this is completed by a GP. After completing a clinical assessment the GP may recommend one of the following:

1. The patient is medically fit to drive and does not require further assessment.
2. The patient is medically fit to drive with specified conditions.
3. The patient is medically fit to drive but an on-road safety test with a testing officer is recommended.
4. The patient is in need of further assessment before they can be deemed medically fit to drive (patient may be referred for specialist medical assessment or to an occupational therapist for driving assessment).
5. The patient is not medically fit to drive.

GPs may recommend that conditions are imposed on a patient's driver licence to improve safety such as automatic vehicle only, no night driving, driving within 10 kilometres of home, or after 9.00 a.m. and before 3.00 p.m. There is only space for 20 characters on the back of the photo licence for each special condition. It is important to ensure that any special recommended conditions for a licence are able to be checked by the traffic enforcement agency.

Advocating for patients who have been deemed unfit to drive

If a patient has been deemed unfit to drive according to New Zealand Transport Agency Standards, but their specific circumstances mean this is inappropriate, the GP may write to the Chief Medical Advisor for consideration of the case. A full licence may be granted in some situations, or a licence with restricted conditions may be given, such as a requirement for annual medical review. In the case of commercial drivers, a supporting report from a medical specialist is usually required.

Regularly assess older people for fitness to drive

A medical assessment is required for licence renewal in people aged over 75 years. However older drivers should be frequently assessed for fitness to drive, especially when their medical conditions or medications change.

It is often difficult to address the topic of driving fitness. If there is a danger of destroying a therapeutic relationship, a GP may consider referring the patient to another medical practitioner for assessment. If a patient is generally medically fit but there is still concern about their driving ability due to frailty, possible cognitive decline or a specific medical condition, they may be referred to a specially trained occupational therapist for a driving assessment. This recommendation can also be indicated on the driver's medical certificate if the patient is renewing their driver licence.

The specific type of driving assessment is dependent on the patient's medical condition. As a rule an occupational therapy driving assessment is only required, where there is a medical problem which impacts on the patient's physical or cognitive function, related to driving.

GP tip: Discussing driving fitness is often forgotten during complex consultations. Make this part of your "safety net" checklist at the end of each consultation. This is especially important in the case of an acute illness where the diagnosis has not been confirmed and when a new drug has been prescribed. Don't forget to record driving advice in the patient notes.

GP assessment of fitness to drive

When considering a patient's fitness to drive, the following factors should be taken into account:

- Do the patient's signs and symptoms of their individual condition affect their ability to drive?
- Does the patient have a condition in which sudden loss of vision or sudden impairment of driving ability may occur?
- Does the patient have a medical history of previous episodes of dizziness, vertigo, angina, visual disturbances or TIA?
- What are the effects of any medications that the patient is currently taking? Is the patient compliant with taking their medications?
- Does the patient have more than one medical condition that may affect driving fitness?
- What type of licence is held by the patient and what type of driving do they undertake? (e.g. passenger vehicle, heavy transport vehicle?)
- What is the patient's motor vehicle accident history? Has the patient had a previous accident related to a medical condition?

Clinical examination should include assessment of:

- Cardiovascular system – especially poorly controlled hypertension, arrhythmias or significant ischaemic disease
- Central nervous system – especially coordination and sensory loss, post-stroke effects, Parkinsonism, TIAs
- Musculoskeletal system – general mobility and strength, especially in relation to arthritis and other degenerative conditions
- Cognitive or mental health issues – orientation in time and place, recent memory, coordination, appropriateness of behaviour and responses, inattention, confusion, ability to communicate
- Sensory – vision and hearing
- Other significant conditions such as severe respiratory illness or malignant disease

Refer to the New Zealand Transport Agency "Medical aspects of fitness to drive" guide (supplied to all GPs) for specific requirements and standards for testing.

Quick driving assessment

Consider if a new medical condition, change in medical condition, new medication or change in dose has the potential to compromise driving performance.

Signs that may indicate decline in an older person's driving abilities

GPs and practice nurses should be alert to signs which may indicate that an older person is having difficulty with driving. The patient themselves, or their family members, may comment on the following:

- Driving at inappropriate speeds – too fast or too slow
- Asking passengers to help check if it is clear to pass or turn
- Responding slowly to or not noticing pedestrians, cyclists or other drivers
- Ignoring, disobeying or misinterpreting road signs and traffic lights
- Failing to give way to other vehicles or pedestrians that have the right of way
- Failing to judge distance between cars correctly
- Becoming easily frustrated and angry
- Appearing drowsy, confused or frightened
- Having one or more near accidents
- Drifting across lanes or bumping into curbs
- Forgetting to turn on headlights after dusk
- Difficulty with glare from oncoming headlights, streetlights etc
- Difficulty turning head, neck, shoulders or body when driving or parking
- Ignoring signs of mechanical problems with the car
- Having too little strength to turn the wheel quickly to avoid hazards
- Becoming lost in familiar areas or routes which would not have previously confused them
- Confusion when stopping or changing lanes
- Not making sound judgements about what is happening on the road

Does the change affect any of the following:

Physical – weakness, slow or limited movement?

Sensory – visual loss, limited feeling in limbs?

Cognitive/perceptual – slowed thinking, decreased attention?

Emotional – anxiety, panic reactions?

Questions to consider asking include: Is anyone concerned about your driving? Do you feel less confident about driving? Have you restricted your driving habits? Do you think you are a safe driver?

Simply observing the patient during the consultation may make it unnecessary to assess some of these functions, but consider examination of cognition, vision, motor skills and sensation.

Discussing being unfit to drive

Prepare patients early for the possibility that they may become unfit to drive at some point in the future. Allow the patient time to consider other transport alternatives that they may need to adopt. Changes could be made prior to a complete cessation of driving, including reducing the amount of time driving, avoiding peak traffic periods, avoiding highways and busy roads or avoiding driving at night time. Patients are usually open to suggestions of ways they can remain safe drivers.

If a patient has been deemed unfit to drive, discuss the reasons for this and when the decision may be reviewed (if at all). It is often a good idea to have this discussion in the presence of a supportive family member or friend. Consider putting the decision in writing for the patient, especially if long-term cessation of driving is advised.

If the patient agrees that they will not drive or will only drive under specified conditions, no further action is required. If the patient does not accept the advice and is likely to continue to drive, the New Zealand Transport Agency should be advised (see sidebar "Legal obligations").

In general, men find it more difficult than women to adjust to life without driving. Being without a driver licence is more of a threat to older men's independence and self-image. Be aware of these gender differences, and how the loss of a driver licence can affect others, that rely on that person for transport.

Driving restrictions for medical conditions common in older people

Table 1 (over page) contains a summary of driving restrictions applicable to medical conditions commonly seen in older people. For a full list of conditions and restrictions, refer to "Medical aspects of fitness to drive" guide.

Medications and alcohol may have an enhanced negative effect on driving in older people

Medications that cause drowsiness or distraction can have a significant impact on driving ability. Age-related changes in drug metabolism can enhance the effect of these medications in older people.

When starting any new medication in an older patient, consider what affect it may have on their driving ability. Adverse effects are often worse in the first few days of a new medication. Consider advising the patient to avoid driving until they know how a medicine will affect them.

Benzodiazepine use is most often associated with an increased risk of injury causing accident among older drivers. Other medications that may affect driving ability include opiates, antidepressants, antipsychotics, some antihistamines and some cold and flu preparations.

The effects of alcohol may also be enhanced in older people. This should be explained to older patients and recommended to them that they have minimal or no alcohol intake prior to driving.

Legal obligations of a medical practitioner in relation to driving fitness

The two legal obligations that medical practitioners must adhere to are:

1. Advise the New Zealand Transport Agency (via the Chief Medical Adviser) of any individual who poses a danger to public safety by continuing to drive when advised not to.
2. Consider the guide "Medical aspects of fitness to drive" when conducting a medical examination to determine if an individual is fit to drive.

N.B. "Medical aspects of fitness to drive: A guide for medical practitioners", provides information for GPs about situations in which driving ability should be assessed. This is a guide to good practice rather than a set of legally enforceable criteria.

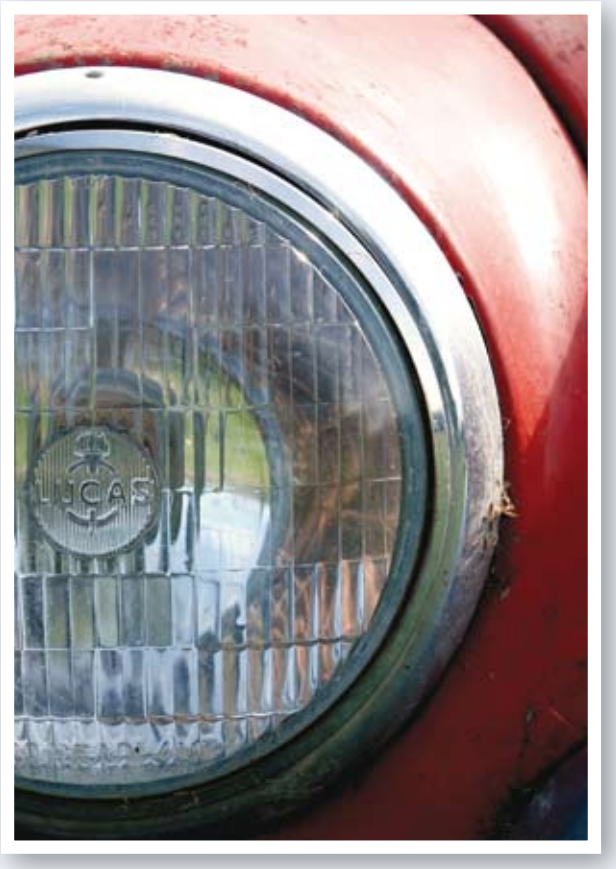

Table 1: Summary of driving restrictions applicable to medical conditions commonly seen in older people

	Private vehicle or motorcycle licence	Heavy transport/passenger endorsement
Cerebrovascular accident (CVA)	Should not drive for at least one month and not until clinical recovery is complete, with no significant residual disability	Should not drive (exceptions may be granted for current licence holders)
Transient ischaemic attack (TIA)	Single TIA – should not drive for at least one month Multiple TIAs – may return to driving after three months, following investigation and treatment of condition	Single TIA – should not drive for at least six months. Multiple TIAs – should not drive (exceptions may be granted)
Neuromuscular disorders including Parkinsonism	Driving should cease when there is doubt about the ability to control the vehicle when rapid response is required	Should not drive (exceptions may be granted if mild symptoms only)
Dementia and other cognitive impairments	Driving should cease when impairments may affect the ability to drive safely	Should not drive
Angina pectoris	Proven or suspected – should not drive if angina pectoris at rest or on minimal exertion	Same as private class
Acute uncomplicated myocardial infarction	Should not drive for at least two weeks (return to driving subject to specialist assessment)	Should not drive for at least four weeks (return to driving subject to specialist assessment)
Severe hypertension	Should not drive if treatment causes symptomatic postural hypotension or impaired alertness	Should not drive if sitting blood pressure is consistently ≥ 200 mmHg systolic or ≥ 110 mmHg diastolic, or if treatment causes symptomatic postural hypotension or impaired alertness
Anticoagulation	Should not drive if anticoagulation cannot be maintained at the appropriate degree for the underlying condition	Same as private class
Cardiac failure and cardiomyopathy	Should not drive if dyspnoea present on mild exertion (return to driving subject to specialist assessment)	Should not drive (exceptions may be granted but not for hypertrophic cardiomyopathy or syncope)
Type 2 diabetes	Generally considered fit to drive unless severe hypoglycaemic unawareness* in which case, should not drive until successfully managed (*inability to detect developing hypoglycaemia and to respond to it appropriately)	Dietary control only – generally considered fit to drive Oral agents – generally considered fit to drive, but may be some licence conditions Insulin – some considered fit to drive, but likely to have licence conditions, specialist assessment necessary Severe hypoglycaemic unawareness - generally considered unfit to drive
Severe chronic mental disorder (including depression)	Driving should cease when the ability to drive safely may be impaired (return to driving subject to satisfactory treatment and usually after an observation period of six months)	Same as private class, but usually an observation period of 12 months before a return to driving

Transport subsidies and specialised equipment are available for older people

Mobility scooters and power chairs

Mobility scooters and power chairs (motorised wheelchairs) may be a suitable option for older people who are no longer able to drive a motor vehicle, have limited distance mobility outside the home and who are sufficiently cognitively capable. A driver licence is not required to operate these devices.

A mobility scooter costs approximately $2000 – $7000 to purchase. Second-hand scooters are available privately and from some retailers. Approximately 250 Lottery Grants are awarded each year for the purchase of a scooter. Some areas offer schemes (e.g. Wellington City Mobility) which provide a number of free scooters for short-term use.

Many local councils run training courses for using mobility scooters or power chairs. Contact the Road Safety Coordinator at the nearest council.

N.B. Lottery grants are also available for funding vehicle modifications for individuals with physical disabilities to drive or travel as a passenger.

Total Mobility taxi scheme

The Total Mobility taxi scheme offers subsidised transport for people with disabilities (mobility, sensory, psychiatric or intellectual) who have difficulty using public transport. After assessment for eligibility, a person will receive up to 50% discount on door-to-door transport (usually a taxi).

This scheme may not be available in all areas (e.g. rural) and there are local variations on the amount of discount applied. Contact the nearest local or regional council or Age Concern office.

Free off-peak public transport

SuperGold Card holders may be eligible for free off-peak public transport (9am to 3pm, after 6pm, weekends and

Occupational therapist driving assessment

Patients may be referred to a specially trained occupational therapist for a driving assessment if a GP is unsure if they are medically fit to drive.

The assessment consists of both off-road and on-road testing. As part of the off-road assessment, the occupational therapist will check vision, range of movement, strength, sensation, coordination, judgement, memory, directional orientation, movement and decision making times, cognition and comprehension and knowledge of road rules and signs.

Occupational therapists trained in driving assessments are skilled in distinguishing between driving behaviours that are existing routine habit, and those that are the result of a medical condition, especially where cognitive impairment is evident and/or there is a physical deficit.

If a patient's off-road testing is satisfactory, the occupational therapist will proceed to an on-road test. This may include driving on both urban roads and highways, driving through controlled and uncontrolled intersections, parking and manoeuvring.

The occupational therapist will send a report to the GP who requested the assessment, with a recommendation as to whether the patient is medically fit to drive. The GP then makes the final decision as to whether a medical certificate is issued.

Most occupational therapists undertaking driving assessments work in private practice. A full off-road and on-road assessment can cost between $380 and $550 with the average being around $400 to $450. This also includes the presence of a driving instructor, whose role is to risk manage the drive and intervene, if required.

Medical conditions which require driving assessment

Medical fitness to drive should be assessed in the presence of the following conditions:

Neurological	Vertigo, Meniere's disease, blackouts, epilepsy, myoclonus, cerebrovascular disease, progressive neurological disorders e.g. Parkinsonism, multiple sclerosis, dementia and other cognitive impairment, intracranial tumours or lesions, head injuries
Cardiovascular	Myocardial ischaemia, severe hypertension, arrhythmias and conduction abnormalities, valvular heart disease, cardiac failure and cardiomyopathy, anticoagulation, congenital heart disease, aneurysm, heart transplant, ECG changes
Diabetes	Type 1 and Type 2
Locomotor	Physical locomotor disabilities, congenital neurological conditions
Visual	Temporary visual impairments, loss of visual acuity, loss of visual fields, monocular vision, diplopia, night blindness, cataracts and aphakia, glare disability, colour blindness
Hearing	Hearing impairment
Mental disorders	Mental disorders affecting psychomotor or cognitive functioning, severe chronic mental disorders e.g. severe anxiety, schizophrenia, bipolar disorder
Age-related	Fatigue, slowed responses, visual problems, impaired cognitive function, impaired mobility, dementia
Other	Excessive daytime sleepiness, respiratory conditions, renal conditions, cancer, HIV and AIDS, intellectual disability, effects of medications, drug or alcohol dependency

Resources

For copies of the New Zealand Transport Agency Medical Certificates for driving assessment, phone **0800 822 422** ext **8089**.

The New Zealand Transport Agency has many downloadable resources on its website for older people including: Renewing driver licences at age 75 and over, supporting older drivers, keeping moving, guide to the on-road safety test and how to use a mobility scooter or power chair safely. See **www.nzta.govt.nz/resources**

To find the nearest occupational therapy driving assessment service, contact Enable New Zealand on **0800 171 981** or the New Zealand Association of Occupational Therapists on **(04) 4736510**.

public holidays). There are local variations to the definition of off-peak travel and types of transport available therefore contact local councils for information.

Mobility Parking permit

The Mobility Parking permit allows users to park in accessible marked parks. Permit holders may also use standard car parks and metered spaces for longer than the stated times. The scheme is run by CCS Disability Action in partnership with local councils. To be eligible, a person must rely on mobility aids such as crutches, walking sticks or a walking frame, or be unable to walk for more than 200 meters unaided due to their condition. Permits cost $45 for five years or $30 for a temporary 12 month permit. GPs must certify applications.

For more information contact:
CCS Disability Action – **0800 227 2255**

National travel assistance scheme

DHBs provide funding for travel assistance to enable people to attend specialist health and disability support services i.e. if a specialist refers a patient to another publicly funded specialist, transport costs of getting there (and accommodation if applicable) may be covered. This does not apply to General Practice visits.

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Information in this article was primarily based on the following sources:

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New Zealand Transport Agency. Driving information sheets. Available from: www.nzta.govt.nz

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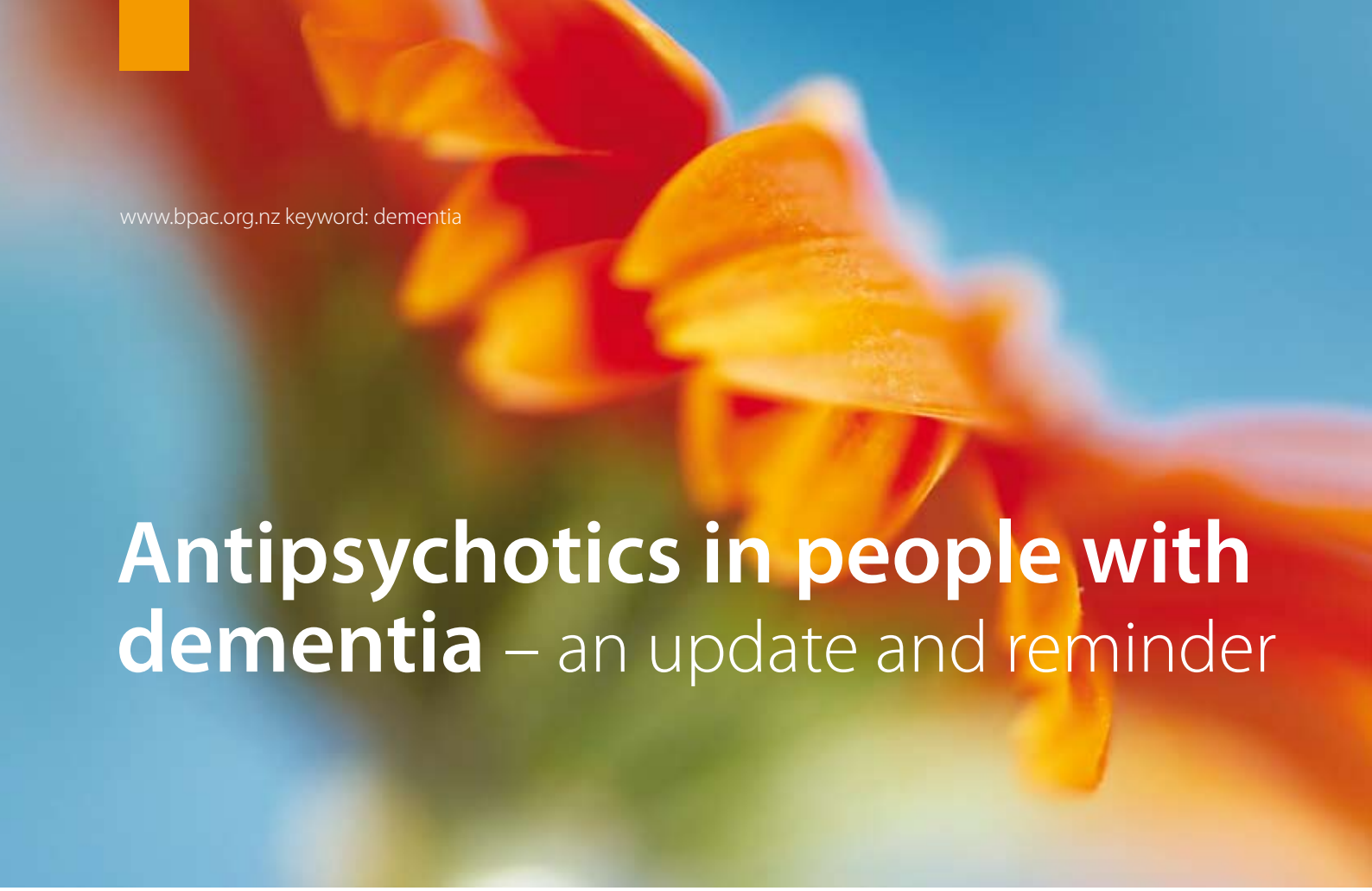


www.bpac.org.nz keyword: dementia

Antipsychotics in people with dementia – an update and reminder

Key concepts:

- Non-pharmacological treatments for the behavioural and psychological symptoms of dementia (BPSD) should be trialled initially before considering drug therapy
- Antipsychotics have limited clinical effectiveness for most features of BPSD
- An antipsychotic is only indicated if aggression, agitation or psychotic symptoms cause severe distress or an immediate risk of harm to the patient or others
- Concurrent non-pharmacological measures should be employed along with drug treatment
- Start with the lowest possible dose, and if a dose increase is necessary, titrate slowly to effect
- Regularly review the patient for clinical response and adverse effects

The Antipsychotics in Dementia (A4D) programme was launched in October 2008 and included a special edition of Best Practice Journal, "Antipsychotics in Dementia", a supporting website and a practice review activity. The focus of the programme was to provide education and guidance on the safe use of antipsychotics in the treatment of behavioural and psychological symptoms of dementia (BPSD) in aged care facilities.

The following is a reminder and update of the key points of the programme along with some results and comments from the practice review. What are the risks and benefits of antipsychotics for BPSD?

What are the risks and benefits of antipsychotics for BPSD?

It is well recognised that antipsychotics provide relatively few clinical benefits for people with dementia and in some cases pose a serious risk of an adverse outcome. Methodological problems make it difficult to provide precise figures for the benefits and risks.

Common manifestations of BPSD[3]

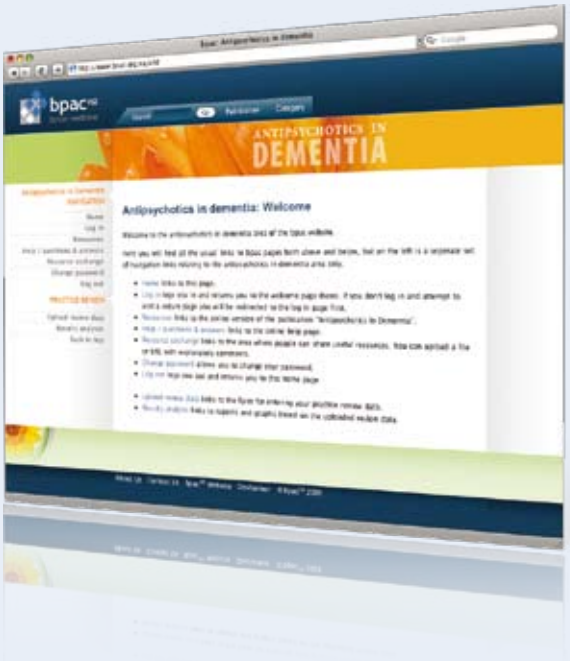
- Aggression
- Agitation or restlessness
- Anxiety
- Depression
- Psychosis, delusions, hallucinations
- Repetitive vocalisation, cursing
- Sleep disturbance
- Shadowing (following the carer closely)
- Wandering
- Non-specific behaviour disturbance e.g. hoarding

A recently commissioned review for the UK National Health Service predicts that for **every 100 people given an antipsychotic only 20 will derive some clinical benefit and there will be one extra death and one extra stroke.**[1] Antipsychotics should not be initiated without careful consideration and repeat prescribing should be limited to those who are obviously benefiting.

Non-pharmacological treatment of BPSD

Non-pharmacological treatment should be trialled initially, before considering drug therapy, as antipsychotics have limited clinical effectiveness for BPSD. Interventions should be tailored to the individual and the impact carefully monitored. A balance is necessary as excessive stimulation or over-activity may be counterproductive.

Most recommendations are based on best practice guidelines and institutional experience of what has been shown to work. A systematic literature review has provided evidence to support the effectiveness of activity programmes such as music, behaviour therapy and improvements to the physical environment.[2]



For more details about the programme please visit:

www.bpac.org.nz/a4d

Improvements in the environment can have a positive impact on symptoms of BPSD

People with dementia have memory and cognitive impairment, and problems in the design and configuration of residential facilities can cause or exacerbate restlessness, frustration, anxiety and disorientation. Some simple changes in the environment that can be beneficial include:[3]

- Moderating noise and other levels of stimulation
- Increasing signage and access to toilets
- Ensuring the surroundings are well lit
- Improving time orientation (e.g. prominent calendar and clock)
- Making the environment as "homelike" and reassuring as possible
- Separating non-cognitively impaired residents from people with dementia
- Small scale group living
- Any measure to reduce stress levels
- If possible, consistency of caregivers and other staff

Recreational activities may enhance quality of life and well being

Activities such as art, music, crafts, cooking, games and interaction with pets stimulate the person with dementia to become involved in a meaningful and enjoyable activity. Involvement in recreation may improve communication and self esteem.

Useful activities for the management of BPSD may include:

- Exercise
- Gardening
- Music
- Art
- Pet therapy
- Walking
- Group activities e.g. singing or craft
- Maintaining routine

Behaviour management may improve symptoms of depression

Behaviour management is defined as a structured intervention usually carried out by caregivers under expert supervision.[3]

Behaviour management involving pleasant events or problem solving has been shown to improve symptoms of depression in people with dementia.[4]

Pharmacological treatment of BPSD

Indications for antipsychotics

BPSD refers to a spectrum of quite diverse symptoms which cannot be placed under the same treatment umbrella. The important message is that antipsychotics are not effective for all BPSD.

There is some evidence that typical (e.g. haloperidol) and atypical (e.g. risperidone, quetiapine) antipsychotics are effective for psychotic symptoms (e.g. delusions or hallucinations) associated with dementia, or for people who are aggressive or agitated without psychoses. An antipsychotic is only indicated if the symptoms cause severe distress or an immediate risk of harm to the patient or others. Unless immediate drug treatment is required, standard non-pharmacological measures should be tried first. A trial of drug treatment should be viewed as a short term strategy and reviewed at least every three months.

At best, the effectiveness of antipsychotics for BPSD is modest. For example, data from placebo-controlled trials involving risperidone and olanzapine suggest that **5 to 14 people need to be treated for 12 weeks for one additional person to show significant improvement in aggressive symptoms associated with dementia**.[5]

Symptoms that do not usually respond to an antipsychotic include wandering, social withdrawal, shouting, pacing, touching, cognitive defects and incontinence.[6] These symptoms may respond to interventions such as improvements to the environment.

It is important to realise that psychotic symptoms may be present without causing concern to the person or others, and in this setting close observation and non-pharmacological management are appropriate.

Drug selection

Haloperidol and risperidone have most commonly been used in BPSD. They do not differ significantly in clinical effectiveness for BPSD. At low doses, and in short term use, there are no appreciable differences in extrapyramidal effects, but haloperidol is associated with a greater risk of tardive dyskinesia.

Haloperidol is often suitable for the short term treatment of delirium or for aggression, agitation or psychoses. For longer term treatment an atypical agent such as risperidone is preferred. However, it should be recognised that risperidone behaves like a typical antipsychotic at higher doses, with the associated increased risk of extrapyramidal effects.

Olanzapine offers no clinical advantage over the other antipsychotics used for BPSD and has anticholinergic adverse effects. It is often associated with rapid and significant weight gain.

It appears that quetiapine is being increasingly used in older people. However there is little evidence to support its effectiveness in BPSD and it can cause significant postural hypotension and sedation.

Neither quetiapine or olanzapine have an indication in New Zealand for the treatment of symptoms associated with dementia.

See page 30 for more information about quetiapine.

Start low and go slow

If a trial of antipsychotic treatment is considered necessary the starting dose should be as low as possible. This is particularly important for those people who are older, frail or at increased risk of falling. The starting dose can be divided or timed according to the behaviour, e.g. a lunchtime dose for those patients exhibiting increased agitation towards the end of the day ("sundowning").

Dose increments should be modest and occur at no less than weekly intervals depending on response. Prior to starting a treatment trial, it is advisable to document what

Table 1: Recommended starting and maintenance doses for antipsychotics

Drug	Initial Daily Dose	Maximum Daily Maintenance Dose	Comments
Haloperidol	0.25 mg	Up to 2 mg twice daily	Initial dose of 0.5 mg can be given at night
Risperidone	0.25 – 0.5 mg	2 mg	1 or 2 divided doses
Olanzapine*	2.5 mg	10 mg	1 or 2 divided doses
Quetiapine*	12.5 mg	100 mg	Needs divided dosing

* Not approved in New Zealand for dementia related psychoses

will constitute a worthwhile clinical response, the duration of treatment and the maximum dose. Avoid high doses or prolonged use of antipsychotics that have not significantly improved the target behaviour. Recommended starting and maintenance doses are given in Table 1.

Maintenance

Initiation of treatment with an antipsychotic should be considered only as a trial to establish whether there is a reduction in the intensity and/or frequency of target behaviours. Carers must know what key adverse effects to monitor. Ongoing dose increases only tend to worsen adverse effects.

Maintenance treatment may be appropriate for those who have demonstrated a clear benefit from antipsychotic treatment without undue adverse effects, and where a trial dose reduction has resulted in reappearance of the target problem. A formal monitoring plan to assess changes in response and the significance of adverse effects should be in place. The prescriber should review the target behaviour, changes in function and significance of adverse effects at least every three months. [7]

Monitoring

Routinely monitor for adverse effects such as constipation, sedation, postural hypotension and extrapyramidal effects. Additional monitoring may be appropriate, e.g. blood glucose and weight measurement with olanzapine.

Withdrawal

BPSD are often temporary, so if symptoms are stable, gradual dose reduction and eventual withdrawal can be tried. Studies have reported that most patients who are taken off an antipsychotic for treatment of BPSD showed no worsening of behavioural symptoms.[8,9]

Withdrawal of antipsychotics should be done gradually, e.g. by reducing the dose by 50% every two weeks then stopping after two weeks on the minimum dose, with monitoring for recurrence of target behaviours or emergence of new ones. The longer a medication has been prescribed, the slower the withdrawal period needed.

Reasons for continuing antipsychotics include:

- An assessment of high risk of adverse consequences if they are withdrawn, especially if treatment has only been partially effective or prior relapses have occurred
- When the consequences of symptom relapse are deemed to be unacceptably severe
- When no alternative treatment approaches have been possible or effective in the past

Decisions to continue antipsychotics should be documented and include expected benefits and potential risks of ongoing treatment.

Results of practice review

After receiving A4D programme material, aged care facilities were invited to complete a review of their practice. A total of 312 patients were reviewed in 36 facilities. The most frequently prescribed antipsychotics for BPSD were risperidone (37%), quetiapine (28%) and haloperidol (13%).

This was a relatively small sample and the survey was not scientifically validated, but the collated responses to some of the questions suggest several areas where practices could be improved, especially in the documentation and review of antipsychotic use for BPSD.

- In 64% of patient notes there was no record that withdrawal of the antipsychotic had been attempted.

  Comment: for most patients, withdrawal of the antipsychotic should be attempted and this should be documented in the patient record.

- Monitoring for adverse effects was only mentioned in the patient record in 35% of cases.

  Comment: there should be a clear record of what adverse effects to look out for especially during initial dose titration.

- For about 30% of patients there was no clear record that target behaviours were identified before prescribing.

  Comment: target behaviours should always be identified before prescribing an antipsychotic.

- For 30% of patients there was no clear record of whether a response to a target behaviour had occurred.

  Comment: failure to monitor response may lead to unnecessarily prolonged treatment or ineffective treatment with a high risk drug.

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Safe prescribing of **quetiapine** and **other antipsychotics** in **older people**

THE USE OF ANTIPSYCHOTICS IN OLDER PEOPLE is associated with an increased risk of falls. Analysis of dispensing patterns for antipsychotics (September 2005 – May 2009) in people aged over 65 years, shows that use of the typical antipsychotics such as haloperidol has remained relatively stable, whereas there has been an increase in the use of the atypical antipsychotics (Figure 1).

Most, if not all, of this increase in atypical antipsychotic use can be attributed to increased volumes of quetiapine (Figure 2). In 2005 risperidone was the most dispensed atypical antipsychotic (56% of all atypical antipsychotics) compared with quetiapine (26%). The latest data indicates that they are now approximately equal on 40%.

What conclusions can be drawn from this analysis?

- The safety concerns about the use of antipsychotics in people with dementia have not reduced dispensing volumes in older people. This may be explained by the fact that antipsychotics, particularly quetiapine, are used in older people for indications other than BPSD.
- The increased volume of quetiapine may be attributed to its use as a hypnotic and sedative, in preference to a benzodiazepine. While there may be some therapeutic advantages of quetiapine over a benzodiazepine, quetiapine is not licensed for these indications and there are some safety concerns, especially postural hypotension and increased fall risk.

Safe prescribing of antipsychotics in older people

- Only prescribe for specific indications and review regularly. Avoid long-term use if possible.
- Start with a very low dose (e.g. 25 mg quetiapine) and titrate to effect carefully.
- Be vigilant for the possibility of excessive sedation and hypotension with antipsychotics, especially with quetiapine. Postural hypotension following the first dose can be sudden and profound, particularly in older people taking other hypotensive drugs and CNS depressants.
- Be aware of the possibility of drug interactions such as additive drowsiness and sedation with antihistamines, antidepressants and alcohol.

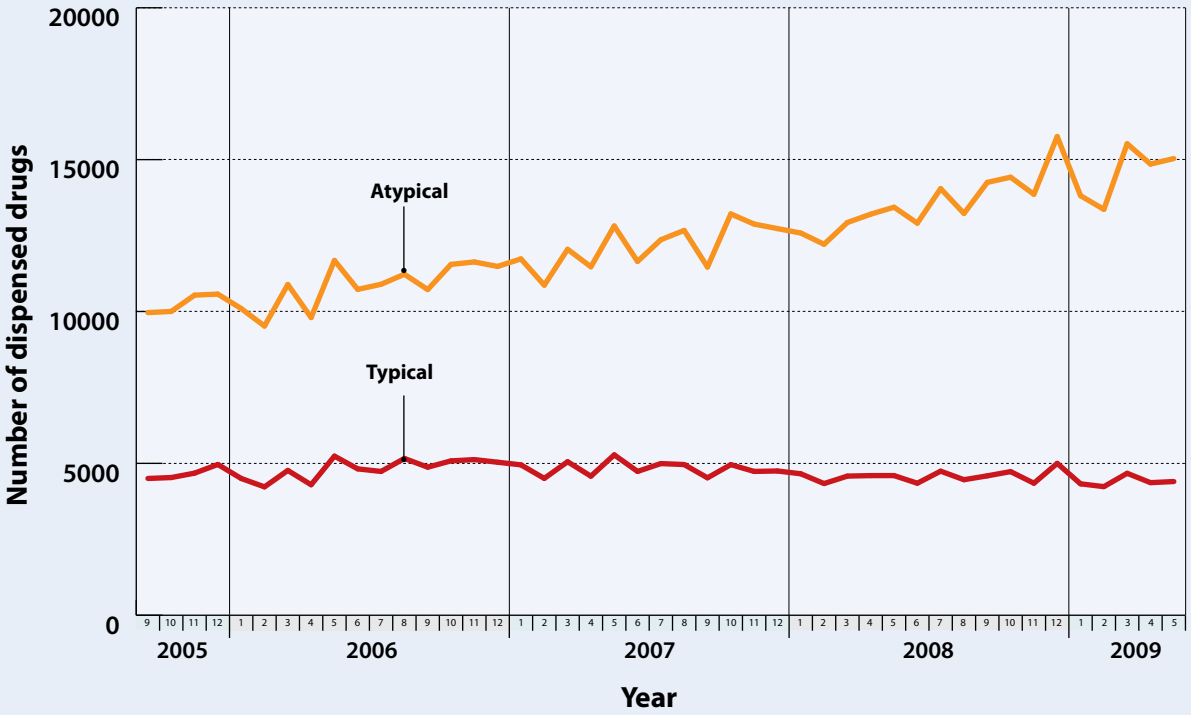


Figure 1: Dispensing of antipsychotics: Typical vs atypical

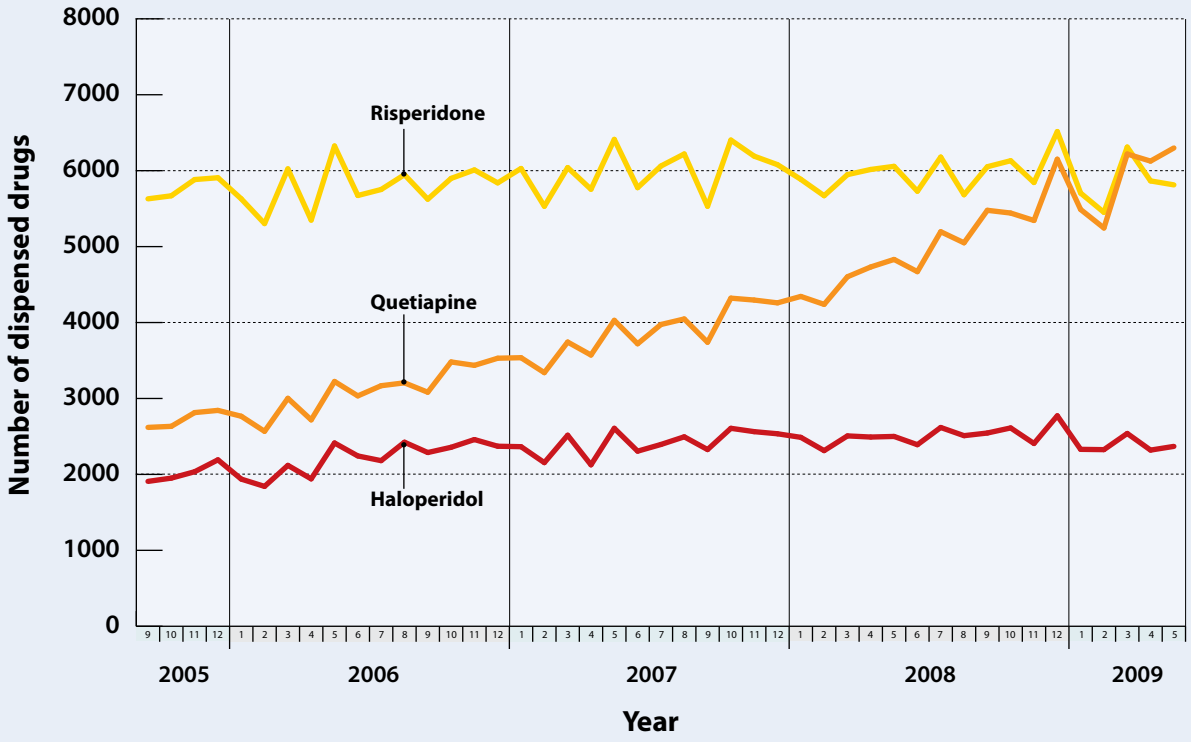
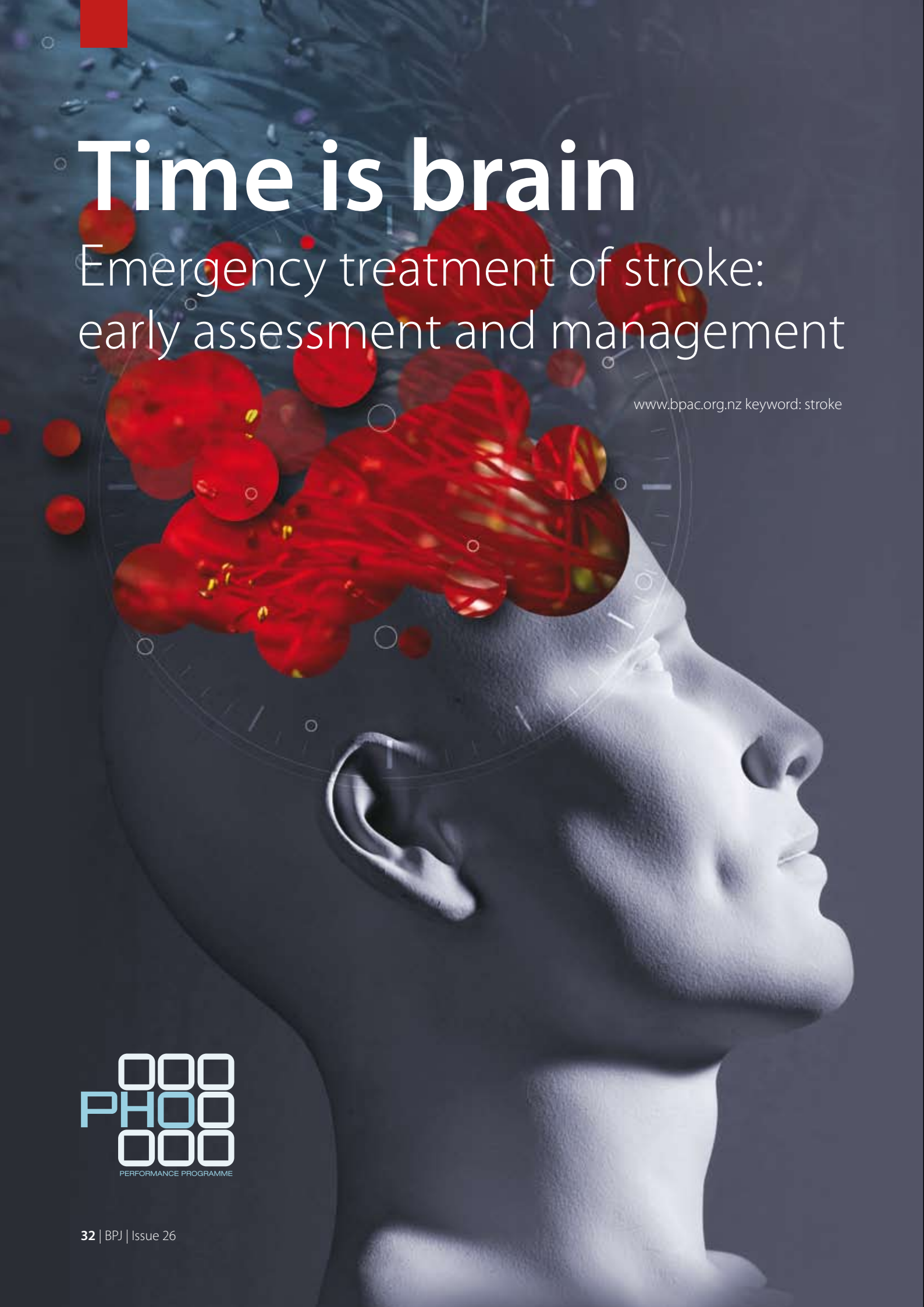


Figure 2: Dispensing of atypical antipsychotics

Time is brain

Emergency treatment of stroke: early assessment and management

www.bpac.org.nz keyword: stroke



PHO PERFORMANCE PROGRAMME

Stroke can be thought of as a "brain attack", which like a heart attack, needs to be dealt with immediately – "time is brain". Rapid access to secondary care management can improve patient outcomes.

Stroke is the third most common cause of death in New Zealand

Approximately 22 strokes occur each day in New Zealand. Although the incidence of stroke increases with age a quarter of people who have a stroke will be under 65 years. The average age of onset of stroke is around ten years lower for Māori and Pacific peoples compared to European people.

Stroke is the third most common cause of death in New Zealand. Approximately 11% of people with ischaemic stroke and 30% of those with haemorrhagic stroke will die within the first month. Compared to other OECD countries New Zealand has below average stroke survival rates.[1]

Stroke is a significant cause of disability and institutionalisation. Approximately two-thirds of stroke survivors will have some level of disability one year after a stroke. Half of all stroke survivors remain permanently disabled.[2]

Recognising a stroke

The predominant symptom of stroke is sudden loss of neurological function e.g. paralysis or numbness. However other neurological conditions may also mimic these symptoms, such as migraine, head trauma, brain tumour and post-ictal paralysis (Todd's Palsy). Hypo- or hyperglycaemia, renal or hepatic failure, infection and drug intoxication may also present with some of the same symptoms as stroke.

Key concepts

- Stroke needs to be dealt with immediately – "time is brain"
- Patients with sudden onset of neurological symptoms should be screened with the FAST tool
- Patients with symptoms suggestive of stroke should be referred to secondary care management immediately
- Do not give aspirin or attempt to reduce blood pressure in the acute setting

Common causes of stroke:

- Thrombosis and atheroma within an artery
- Athero-thromboembolism (e.g. from carotid arteries)
- Heart emboli (atrial fibrillation, infective endocarditis, myocardial infarct)
- Central nervous system bleed (hypertension, head injury, aneurysm rupture)
- Systemic hypotension and shock
- Vasculitis e.g. giant cell arteritis
- Arterial dissection, most commonly vertebral and carotid arteries
- Venous-sinus thrombosis

Symptoms of a stroke typically:

- Start suddenly - the patient, or witness, is certain when the event began
- Have maximal neurological deficit at the onset - progressive symptoms imply another diagnosis
- Are focal - representative of loss of blood supply to one part of the brain
- Involve loss of neurological function e.g. paralysis or numbness

Transient ischaemic attack (TIA) is classically defined as stroke signs and symptoms that resolve within 24 hours. However, most transient symptoms that last for more than one hour are in fact small strokes.

The exact pattern of neurological deficit in stroke depends on which artery is involved.

Use the FAST tool to screen for stroke

Patients with sudden onset of neurological symptoms suggestive of a stroke should be screened with a validated tool such as FAST (see sidebar) It is recommended that hypoglycaemia is excluded first.

The limitation of FAST is that it may not detect less common presentations of acute stroke or TIA, such as people with visual field defects, disorders of perception, balance, or coordination or unilateral weakness confined to the leg.

FAST

FACIAL WEAKNESS – Can the patient smile?

Ask patient to smile or show teeth.

- Look for new asymmetry – is there unequal smile or grimace, or obvious facial asymmetry?

ARM WEAKNESS – Can the person raise both arms?

Lift the patient's arms together at 90 degrees if sitting, or 45 degrees if supine, and ask them to hold in position for five seconds. Then let go.

- Does one arm drift down or fall down rapidly?

SPEECH PROBLEMS – Can the person speak clearly?

If the patient attempts conversation.

- Look for new disturbance of speech (check with witness)
- Look for slurred speech
- Look for word-finding difficulties. This can be confirmed by asking the patient to name commonplace objects that may be nearby, such as a cup, chair, table, keys, pen
- If there is a severe visual disturbance, place an object in the patient's hand and ask him/her to name it.

TIME TO REFER

If there is any neurological deficit, consistent with stroke or TIA, do not delay: Arrange to transfer the patient immediately to secondary care.

(Adapted from NICE 2008[3])

Acute stroke treatment

Patients with symptoms suggestive of stroke should be referred to secondary care management immediately.

1. Arrange urgent admission to the nearest hospital with facilities for brain imaging
2. Do NOT give aspirin. In contrast to a resolved TIA (or MI), aspirin should not be given to individuals with ongoing symptoms until brain imaging excludes haemorrhage
3. Do NOT attempt to reduce blood pressure in the acute setting

Immediate referral may not be appropriate for some individuals with severe co-morbidities or a terminal illness.

The main aim of acute stroke management is to preserve life, reverse or limit brain damage and prevent complications.

"Time is brain"

Urgent brain imaging, such as CT or MRI scan, is required to rule out haemorrhage before thrombolysis or for those whose clinical condition is poor e.g. severe headache, progressive symptoms, reduced level of consciousness. All other people with stroke should ideally be imaged within 24 hours and certainly within 48 hours.

Thrombolysis is recommended as first-line treatment for ischaemic stroke for people who meet specific criteria (see sidebar), however it is currently only available in a limited number of locations around New Zealand. Similar to acute MI there is a small window where thrombolysis is of benefit for ischaemic stroke – up to 4.5 hours, but ideally within three hours.[4]

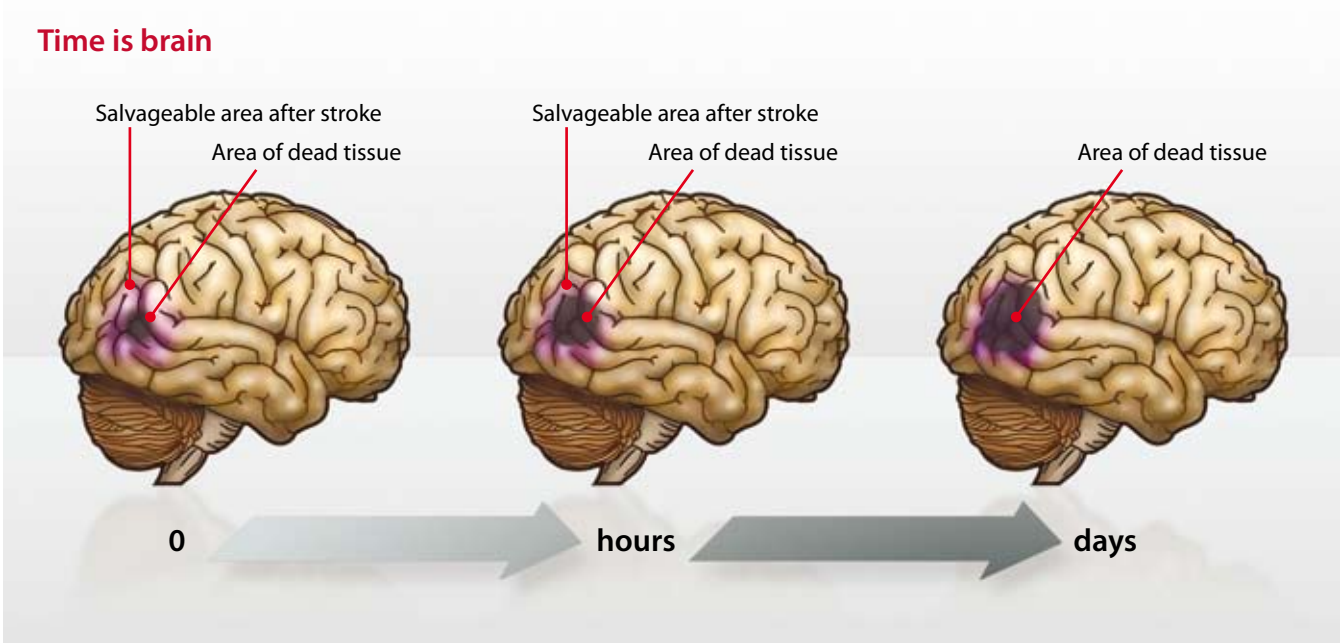
"Time" is quite literally "brain" and the sooner the treatment is given, the greater the chance of a successful outcome.

Acute stroke treatment in secondary care

Stroke units improve outcomes

Clinical trials have demonstrated clear benefits of rapid access to dedicated stroke units (similar to cardiac care units). Stroke units achieve approximately 20% better survival rates than usual care.[5] The positive impact of aspirin and early thrombolysis for ischaemic stroke has improved survival and reduced disability.[6,7] The message is clear: organised stroke care saves lives and reduces disability. Currently there are stroke units in most major centres in New Zealand and other areas are in the process of establishing units.

Time is brain



Acute thrombolysis with alteplase

Alteplase (recombinant tissue plasminogen activator - tPA) is recommended as first-line treatment for ischaemic stroke, for people who meet specific inclusion criteria (see sidebar), by most national and international guidelines. Treatment within 4.5 hours of stroke onset has been shown to be safe and effective.[8]

Patients treated with alteplase are at least 30% more likely to have little or no disability at three months than those who did not receive this treatment.[9] If treated within one hour the estimated number of patients needed-to-treat (NNT) to see benefit is only three. By 4.5 hours the NNT to prevent one death or disability has risen to 14.[10]

Acute antiplatelet therapy with aspirin for ischaemic stroke

After exclusion of haemorrhagic stroke, aspirin (150–300 mg) is given as early as possible, although delayed one or two days if thrombolysis is given. Aspirin reduces the risk of death and recurrent stroke.[11] It is recommended that aspirin is continued as part of a long-term antithrombotic treatment regimen.

Decompressive hemicraniectomy

In rare occurrences, a patient with a large middle cerebral artery infarct may progressively deteriorate in their level of consciousness, and have reduced ventilatory drive during the first 24–48 hours. In this instance, prognosis is very poor without intervention and these patients require decompressive hemicraniectomy, which relieves intracranial pressure from swelling of brain tissue.

Removal of a substantial area of skull and dura allows the brain to expand without compressing other brain structures. At six weeks to six months after removal, the stored bone flap, or an artificial replacement, is used for reconstituting cranioplasty.[12]

Eligibility for thrombolysis in New Zealand

Inclusion criteria:

- Age 18 – 85 years
- Clinical diagnosis of ischaemic stroke causing measurable neurological deficits
- Clearly defined onset of symptoms within three hours of treatment initiation (a patient must not have woken from sleep with symptoms)
- Patient able to undergo CT before tPA administration

Exclusion criteria are numerous, some examples are:

- Coma
- Minor or non-disabling stroke symptoms
- History of stroke in previous 12 weeks
- Myocardial infarction within the past 30 days
- Conditions involving increased risk of bleeding e.g. recent trauma, ulcerative wounds, thrombocytopenia


See "New Zealand protocols for the management of stroke and TIA" for a full list of inclusion and exclusion criteria. Available from: **www.stroke.org.nz/pdfs/SUNNZguidelines.pdf**

ACKNOWLEDGMENT Thank you to **Dr Gerry McGonigal**, Clinical Leader, Capital & Coast DHB Rehabilitation Service, Wellington, for expert guidance in developing this article.

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www.bpac.org.nz keyword: secondarystroke

Secondary stroke prevention

Key concepts

- People who have had a stroke or a TIA are at increased risk of a future stroke
- Secondary stroke prevention includes lifestyle interventions, blood pressure management, antithrombotic treatment, lipid lowering and maintaining good control of diabetes
- Carotid surgery (usually endarterectomy) may be considered after a TIA or a non-disabling stroke involving the carotid artery territory

People who have had a stroke are at increased risk of having another

People who have had a stroke or a TIA are at increased risk of future stroke, especially in the following few months.[1] About 10% of those who survive their initial stroke have another stroke within one week, 14% by one month and 18% by three months.[2] Thereafter the risk falls to approximately 5% per year. There is also an increased risk of a MI (2–3% per year) and death from cardiovascular causes (approximately 7% per year).[3,4]

Secondary stroke prevention includes:

- Lifestyle interventions, especially smoking cessation
- Blood pressure management
- Antithrombotic treatment
- Lipid lowering agents
- Good control of diabetes
- Carotid surgery

Lifestyle interventions

Patients should be supported to identify, prioritise and manage their individual risk factors:

- Stopping smoking
- Eating a healthy diet and achieving a satisfactory weight
- Avoiding excess alcohol
- Regular exercise

For further information see "The science behind lifestyle risk factors for cardiovascular disease" BPJ 18, Dec 2008.

Encourage all smokers to stop

Smoking is a major cause of strokes with smokers four times more likely to have a stroke compared with non-smokers.[5] Stopping smoking halves the risk of mortality from ischaemic heart disease within one year and the risk of stroke declines significantly after two to five years. By 10 to 15 years after quitting the risk of stroke is the same as that of a non-smoker.[6]

Dietary modification

All patients should receive general advice about a healthy diet with plenty of fish, fibre, fruit and vegetables and low in saturated fat and salt.

Dietary improvements have been shown to reduce vascular risk factors.[7] Reducing salt intake to less than approximately one teaspoon per day may achieve a reduction in blood pressure equivalent to a single antihypertensive agent (~2–8 mmHg systolic).[8]

Dietary supplements such as folate or antioxidants have not been shown to improve stroke risk.[9,10]

Alcohol in moderation is acceptable, but dangerous in excess

Alcohol consumption in moderation is acceptable and some studies have demonstrated a protective effect on the risk of stroke.[11] However excessive alcohol consumption increases the risk of haemorrhagic stroke.[12]

- Advise men to consume no more than three units of alcohol per day
- Advise women to consume no more than two units of alcohol per day
- Advise everyone to avoid binge drinking

Regular exercise is part of a healthy lifestyle

There is good evidence for improved cardiovascular health with exercise although no direct evidence that exercise reduces the risk of stroke directly. However inactivity is associated with an increased risk of stroke.[13]

After a stroke exercise should be tailored to the level of disability, but in general:

- Advise people to undertake 30 minutes of at least moderate intensity exercise per day, which can be in bouts of 10 minutes or more throughout the day, at least five days per week
- Encourage people, who cannot manage this, to exercise at their maximum safe capacity
- Recommend exercise that can be incorporated into everyday life, such as brisk walking or using stairs

Reducing blood pressure, reduces the risk of recurrent stroke

Reducing blood pressure is beneficial irrespective of the type of stroke, baseline blood pressure (even if normotensive) or age.[14] An average reduction of 8 mmHg systolic and 4 mmHg diastolic pressure reduces the relative risk of recurrent stroke by about one-quarter and reduces the risk of a MI or vascular death by about one-fifth.[15]

It is advisable to wait two weeks after a disabling stroke before reducing blood pressure. It is recommended to start, or use additional, antihypertensive medication as required to achieve a blood pressure of 130/80 mmHg or below depending on the individual patient.[16] One exception is patients with severe carotid stenosis who require a systolic blood pressure in the range 140–150 mmHg.[16, 17]

Thiazide diuretics or a combination of thiazides plus ACE-inhibitor have the greatest evidence of benefit for secondary prevention of stroke.[15] Although the benefit is believed to be mainly from the reduction in blood pressure rather than the specific antihypertensive, it seems reasonable to start with a thiazide and to add in an ACE-inhibitor as required.

Antithrombotic treatment benefits most patients who have had ischaemic stroke

Antithrombotics reduce the risk of recurrent ischaemic stroke, however there is a risk of adverse effects, mainly intracranial and gastrointestinal haemorrhage.

Antiplatelet therapy reduces the risk of ischaemic stroke

For the majority of patients the overall benefits of antiplatelet treatment outweigh the risks.[18] Antiplatelet therapy should be prescribed routinely unless there are clear contraindications or anticoagulants are more appropriate. Contraindications include:

- Recent gastrointestinal or other bleeding
- Symptoms of active peptic ulcer disease
- Allergy to aspirin or other antiplatelet drugs
- Intracranial haemorrhage

Aspirin plus dipyridamole is the best antiplatelet therapy to reduce the risk of ischaemic stroke (Table 1).[19]

In most cases it is appropriate to start antiplatelet therapy as soon as intracranial haemorrhage has been excluded via brain imaging.

For further information see “The role of antiplatelet agents” BPJ 19, Feb 2009.

Anticoagulants are more appropriate for patients with atrial fibrillation and ischaemic stroke

People with atrial fibrillation and prior ischaemic stroke or TIA are at substantial risk of stroke (approximately 12% per year). Adjusted-dose warfarin treatment with a target INR of 2.5 results in a relative risk reduction of about two-thirds.[20] Benefit is shown in people of all ages including those who are very elderly.[21]

There are however many contraindications to anticoagulant therapy and up to 50% of people in this high risk group may

Table 1: Antiplatelet therapy for reducing recurrent ischaemic stroke or arterial origin.

Antiplatelet therapy	Recommendations
Aspirin plus dipyridamole	Best combination to reduce further stroke. Dipyridamole is now fully funded without restriction (since July 2009). Patients should be warned of the risk of dipyridamole-related headache that occurs in one-third of patients but usually settles in one to two weeks. Treat aspirin-related dyspepsia symptoms with PPI rather than swap to clopidogrel
Aspirin	Use alone only if intolerant to dipyridamole
Clopidogrel	Second line alternative to aspirin (or aspirin + dipyridamole) in those with true allergy or intolerance. Special Authority required.
Dipyridamole	Not recommended as single agent
Aspirin plus clopidogrel	Not recommended for routine prevention as increased risk of haemorrhage but benefit in severe carotid stenosis under specialist advice

not be able to take anticoagulants. Warfarin should not be started within 14 days of a disabling ischaemic stroke. For those unable, or unwilling, to take anticoagulants aspirin is a less effective but reasonable alternative.

For further information see "Warfarin vs aspirin" BPJ 19, Feb 2009.

Some contraindications to anticoagulant therapy include:

- Haemorrhagic stroke
- Uncontrolled hypertension
- Recent gastrointestinal or other bleeding (previous six months)
- Severe liver disease
- Poor compliance with medication and monitoring (cognitive impairment, confusion, chaotic lifestyle, difficulty accessing anticoagulation services)
- Tendency to falls
- Planned surgery
- Pregnancy

Rarely patients may be treated with both anticoagulants and antiplatelets if they are at particularly high risk of thromboembolic disease e.g. mechanical heart valve. Generally the risks of a major bleed with this combination far outweigh the benefits.

Reducing cholesterol with statins reduces risk of ischaemic stroke

Reducing total cholesterol blood levels with a statin reduces the risk of ischaemic stroke as well as other vascular events. The reduction in risk is directly proportional to the reduction of LDL cholesterol and is significant with changes as small as 1.0 mmol/L, regardless of the statin used.[22] Cholesterol reduction with a statin is recommended in all patients with a prior ischaemic stroke or TIA with baseline total cholesterol >3.5 mmol/L or LDL >2.6 mmol/L.[23,24]

In contrast the effect of statin treatment on the risk of haemorrhagic stroke is uncertain and may be detrimental. Current recommendations are to avoid statins in the majority of patients with haemorrhagic stroke.

Statins are usually well tolerated. Sometimes a patient who cannot tolerate one statin may tolerate another. Simvastatin 40 mg is recommended in New Zealand, although a lower starting dose of 20 mg may be appropriate in frail elderly people.[13] Atorvastatin is funded under special authority when high risk patients are intolerant of simvastatin or, despite compliance at maximum doses, have poor reduction of LDL.

For patients who cannot tolerate a statin, alterative lipid-lowering interventions (e.g. fibrates, diet) to try to reduce the LDL concentration could be considered. However the evidence of beneficial effect on stroke risk reduction appears to be limited to statins alone.

Management of diabetes

Good glycaemic control has not been shown to directly improve the risk of macrovascular disease such as stroke.[25] However the prevention of microvascular complications, such as nephropathy, is likely to be beneficial.

Carotid surgery is beneficial for some carotid artery territory strokes

Carotid surgery (usually endarterectomy) may be considered for some people after a TIA or a non-disabling stroke involving the carotid artery territory. It is not recommended for those with disabling stroke. Approximately 20% of all ischaemic strokes are associated with carotid artery disease (carotid stenosis). Endarterectomy is of clear benefit for patients with greater than 70% stenosis, but may be considered in those with 50–69% stenosis. It is of less benefit in near-occlusions or stenoses of less than 50%. Other factors that are taken into account are age, gender, time since last symptomatic event, type of symptomatic event(s) and plaque surface morphology.

Because any delay in surgery may result in what could have been a preventable stroke it is recommended that, if fit for possible surgery, patients with recent carotid artery territory symptoms should be referred urgently for carotid imaging and specialist review.[26]

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Depression in Young People

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Norovirus

Dear bpac,
In the "Assessment and management of Infectious Gastroenteritis" (BPJ 25, December 2009) you suggest that "hand washing and alcohol based hand rubs" are important for the prevention of transmission of norovirus. Some sources suggest that as norovirus has no lipid coating hand rubs are ineffective. Would you care to comment on this controversy?

Dr Kerr Wright
GP, Opotiki

Studies on norovirus are limited as it cannot be cultured in the laboratory. Surrogate viruses are used in laboratory testing, however there is considerable debate about this practice. Studies show that viruses similar to norovirus, notably feline calicivirus, are not reduced as readily by alcohol hand rubs as they are by hand washing. Later studies using hand rubs containing higher concentrations of alcohol and involving longer contact times have shown an improvement in effectiveness.

There are several difficulties when attempting to prevent the transmission of infectious gastroenteritis:

- Identifying the particular causative agent is not always possible when dealing with cases/outbreaks of gastroenteritis.
- Norovirus is highly infectious and meticulous hand washing and drying is required to have optimal effect in reducing transmission. Exclusive hand washing and drying is not practical in many settings.
- The environment is commonly contaminated so hand hygiene after environmental contact is important

Infection control guidelines advocate the use of alcohol based hand rubs in outbreaks, because in a practical setting they do help to prevent transmission. Alcohol rubs are contraindicated if hands are soiled with organic material.

Compliance is better with hand rubs than it is with meticulous hand washing and drying. So although hand rubs are not as potent in the laboratory as we might like, they are important in the practical setting when used in combination with hand washing and drying.

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