

Parkinson's Disease

[Disclaimer](#)

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Red Flags

- Acute onset of a movement disorder, e.g. severe ataxia, hemiballismus
- Acute dystonic or akinetic crisis
- Device-related infection in people with a deep brain stimulator implant

Background

About Parkinson's disease

- *One of the most common neurodegenerative diseases. There is no cure.*
- *70,000 people live with Parkinson's disease in Australia. 32 people are diagnosed daily.*
- *Diagnosis is made by careful history and examination.*
- *Peak age of onset is 55 to 65 years. 18% of those diagnosed are aged < 65 years, and 3% aged < 40 years.*
- *Can have slow progression over 20 years.*
- *Support and education of patients and their families is very important.*

Assessment



Practice Point - Consider exposure to pesticides

Be aware of the higher rate of Parkinson's disease in Victoria farmers due to the association of the disease with exposure to pesticides.

1. Arrange immediate referral to the [Emergency Department](#) via ambulance for any patient presenting with:
 - **acute akinesia**

Acute akinesia

Life-threatening complication of Parkinson's disease with a death rate of 15%. Involves almost complete loss of movement, dysphagia, hyperthermia, loss of autonomic regulation. Often preceded by loss of response to Parkinson's medications.

- **acute dystonia**

Acute dystonia

Common and distressing complication of antiemetic and antipsychotic drugs, particularly in Parkinson's patients. Symptoms include extra-orbital muscle spasm, torticollis, painful forced neck extension, protruding tongue, dysarthria and grimacing, generalised spasticity.

Treatment is with slow intravenous benztropine, 1 to 2 mg.

- a suspected deep brain stimulator infection
- acute onset of severe movement disorder symptoms

2. Consider a diagnosis of Parkinson's disease if 2 of the following features are present:

- **Bradykinesia** – ideally, bradykinesia should be present to make the diagnosis

Bradykinesia

- *Slowness of voluntary movement and reduced automatic movement, e.g. arm swinging when walking.*
- *Difficulty with fine, rapid movements especially of the fingers, e.g. fastening buttons, shaving, writing.*

- **Tremor** at rest

Tremor

- *Initially unilateral*
- *Worse at rest and when distracted*
- *May involve hands, arms, legs, feet, jaw, tongue*
- *Absent during sleep*

- **Rigidity**

Rigidity

- *Stiff, often flexed posture*
- *Cogwheel type rigidity mostly in upper limbs*
- *Leadpipe type rigidity mostly in legs*

3. Distinguish between Parkinson's disease and atypical **Parkinsonian disorders**.

Atypical Parkinsonian disorders

- *Also called Parkinsonism.*

- Any disorder characterised by muscular rigidity and bradykinesia (slowness of movement).
- Most are due to other neurodegenerative disorders such as dementia with Lewy bodies (DLB), multiple system atrophy (MSA), progressive supranuclear palsy (PSP), and corticobasal degeneration (CBD).
- May have a specific cause, such as medications which interfere with dopamine release in the brain e.g., neuroleptics, metoclopramide, prochlorperazine.
- Treatment is determined by the underlying cause.
- If not caused by medication which can be stopped, then specialist assessment is usually necessary.

4. Assess for other features of Parkinson's disease:

- **Early non-specific symptoms**, as onset is often insidious

Early non-specific symptoms

- Tiredness
 - Stiffness, aching limbs, general slowing up
 - Mental slowness
 - Depression
 - Small handwriting
 - Slower, quieter, and more monotonous speech
 - Gastroenterological problems, including constipation
 - Sleep disorders and REM sleep behaviour
- Fixed facial expression with infrequent blinking
 - Quiet, monotonous voice
 - Normal muscle strength, power, and reflexes
 - **Anosmia**

Anosmia

- An early feature of idiopathic Parkinson's disease, and a differentiating feature from other Parkinsonian syndromes.
 - Can be tested using oil of cloves.
- Late features include **gait** changes, postural changes, and falls associated with postural instability

Gait changes

- Begins as unilateral loss of arm swing and progresses to arms being held flexed at waist without a swing
- Slow to start walking
- Shortened stride
- Rapid steps, tendency to run
- Impaired balance on turning

5. Check for **features that suggest an alternative diagnosis**, such as atypical Parkinsonism disorder.

Features indicating alternative diagnosis

- *No tremor at time of diagnosis*
- *Bilateral signs at onset*
- *Dementia or hallucinations early in the disease course*
- *Reduced range of eye movements at diagnosis*
- *Falls or drop attacks early in history*
- *Up-going plantar reflex*
- *No response to medications*
- *Sense of smell present*
- *Severe REM sleep behaviour typical of multi-system atrophy*

6. Look for other symptoms that may affect management:

- Postural hypotension
- Change in cognitive function
- Weight loss
- Co-morbidities

Management

1. If any **red flags**, arrange immediate referral to the [Emergency Department](#) via ambulance.
2. At onset of symptoms, arrange a [urgent or routine neurology referral](#) assessment to ensure the correct diagnosis, and form a management plan. Misdiagnosis is common, and diagnosis needs to be confirmed prior to starting medication.
3. Recommend patient and family education and supports:
 - See Parkinson's Victoria – [Homepage](#) and [Peer Support Flyer](#).
 - Consider referral for physiotherapy, occupational therapy, speech language therapy, exercise physiology.
 - Encourage all patients to **take control of their affairs**.

Taking control of affairs

- *Make a will.*
- *Appoint a:*
 - [enduring power of attorney \(financial and personal\)](#):
 - [Enduring Power of Attorney appointment: Short Form](#)
 - [Enduring Power of Attorney appointment: Long form](#)
 - **medical treatment decision maker.**

Medical treatment decision maker

- *An adult may appoint a medical treatment decision maker when they have decision-making capacity to do so.*
- *There can only be one medical treatment decision maker at a time.*

- *If an adult does not have decision-making capacity, the medical treatment decision maker will be the first person who is willing and available in the list below:*
 - *An appointed medical treatment decision maker*
 - *A guardian appointed by the Victorian Civil and Administrative Tribunal (VCAT)*
 - *The first of the following with a close and continuing relationship with the person:*
 - *Spouse or domestic partner*
 - *Primary carer of the person*
 - *Oldest adult child of the person*
 - *Oldest parent of the person*
 - *Oldest adult sibling of the person.*
- *If a child does not have decision-making capacity, their medical treatment decision maker will be a parent, guardian or other person with parental responsibility.*
- *A patient's medical treatment decision maker must make the decision that they reasonably believe is the one that the patient would have made.*
- *A health practitioner can disclose health information about the patient to their medical treatment decision maker where it is relevant to a medical treatment decision they will make.*
- *A patient's medical treatment decision maker must make the decision that they reasonably believe is the one that the patient would have made.*
- *See [checklist](#) of steps for appointing a medical decision maker.*

➤ **support person** for their medical decisions if appropriate.

Support person

- *This is a new role under the new act.*
- *To appoint a medical support person the patient must have decision-making capacity.*
- *The role of a support person is to:*
 - *access, or help the patient access, health information relevant to a medical treatment decision.*
 - *support the patient to make, communicate, and give effect to their medical treatment decisions.*
 - *represent the interests of the patient in respect of the patient's medical treatment, including when the patient does not have decision-making capacity.*
- *The support person does not have the power to make medical treatment decisions on the patient's behalf.*

- See [checklist](#) of steps for appointing a medical support person.
 - Consider an [advance care directive \(ACD\)](#).
4. Advise your patient of their responsibility to notify the Motor Registry Authority according to [AFDA requirement](#).
 5. Assess the benefits and risks of **drug treatment**. Advise the patient that it is okay to delay treatment until there are functional problems. Benefit from medication reduces with time.

Drug treatment

- *First line medications are usually either dopamine agonists or dopamine replacement therapy:*
- **Dopamine agonist** – used in younger patients with mild symptoms and less motor complications.

Dopamine agonists

- *Include pramipexole and rotigotine.*
- *Directly stimulate dopamine receptors.*
- *Are effective alone or combined with levodopa for symptoms of early Parkinson's Disease.*
- *Help manage motor fluctuations.*
- *Can reduce off time, improve motor function, and reduce the need for levodopa.*
- *Dopamine replacement therapy (**Levodopa**) – used initially in older patients with more motor symptoms i.e., rigidity and bradykinesia.*

Levodopa

- *Precursor of dopamine.*
- *Given with a dopa-decarboxylase inhibitor such as Sinemet or Madopar.*
- *Start dose low and titrate upwards in response to the therapeutic effect.*
- *Particular care needs to be taken with the elderly and those with other co-morbidities.*
- *The long-term use is limited by motor complications and drug-induced dyskinesias:*
 - *"On-off" phenomena where patients may switch from severe dyskinesia to immobility in a few minutes e.g., wearing off, dose failures, freezing.*
 - *Dyskinesias may occur either at the beginning or end of a dose, or sometimes at its peak.*
- *Avoid the use of metoclopramide, prochlorperazine, and haloperidol – domperidone is a safe alternative for nausea and vomiting.*
- *For a list of other medications to avoid or use with caution in Parkinson's disease, see [Medications to be Used with Caution for People with Parkinson's](#).*

6. Manage any complications due to long-term use of levodopa:

- These present as dyskinesias and motor fluctuations, such as "wearing off" and "on-off".
- Occurs in about half of patients after 5 to 10 years of levodopa treatment.
- These are difficult to treat, and specialist help is usually required.
- Try adjusting dosage and timing by:
 - smaller, more frequent doses.
 - reducing the frequency of dosing by using long-acting levodopa preparations e.g., Sinemet CR, Madopar HBS.

Make only small changes to one drug at a time, and allow sufficient time for changes to take effect. Note that sudden major changes can cause severe immobility.

- Alternative medications include:
 - **catechol-O-methyl transferase (COMT) inhibitors.**

Catechol-O-methyl transferase (COMT) inhibitors

- *COMT metabolises levodopa and dopamine.*
- *Inhibiting COMT inhibits levodopa, prolonging the response to each dose.*
- *May exaggerate Levodopa side-effects.*

- **anticholinergics.**

Anticholinergics

- *Correct the imbalance between dopamine and acetylcholine.*
- *Useful to treat disabling tremors, particularly in younger patients with preserved cognitive function.*
- *Limited use in patients aged > 70 years due to side-effect profile, e.g., postural hypotension, urinary retention, constipation, neuropsychiatric adverse effects.*

- *NMDA antagonists – amantadine is now known to be an NMDA antagonist, and is useful for dyskinesia, but has a window of usability.*

- **monoamine oxidase type B inhibitors.**

Monoamine oxidase type B inhibitors

- *Give mild symptomatic improvements in early stage.*
- *Adjuvant therapy for motor fluctuations in late stage.*
- *Possibly scavenge free radicals formed by the oxidative metabolism of dopamine and are theoretically neuroprotective.*

7. Discuss medication and mobility difficulties with the patient:

- *Some patients prefer being mobile and accept the dyskinesias, while others find the dyskinesias intolerable and prefer to be more bradykinetic.*
- *It may be beneficial to stop adjusting the medications, reduce the dose, and treat the associated problems.*

8. Provide **driving advice**.

Driving advice

- Ensure that the patient is on optimal therapy before judging driving ability.
- A temporary stand down may be necessary while introducing or adjusting medications.
- In late stage, driving may need to cease if the patient is unable to rapidly respond.
- Regularly review for developing dementia.
- Consider a [driving assessment](#).

See also Austroads – [Assessing Fitness to Drive](#)

9. Review every 3 to 6 months to assess disability, [cognition](#), sleep problems, depression, and bowel disturbance.

10. Manage any non-motor symptoms via 3 to 6 monthly reviews:

- **Mental health problems**

Mental health problems

Anxiety and depression are very common, resulting from both the grief of diagnosis and the chemical changes Parkinson's disease causes in the brain.

Review mental health regularly. Some antidepressants are contraindicated or prescribed with caution in Parkinson's Disease.

Other conditions associated with medications and Parkinson's disease are:

- *impulse control disorder.*
- *gambling.*
- *punding or hoarding.*
- *dopamine dysregulation syndrome.*
- *hypersexuality.*
- *overeating.*
- *compulsive disorder.*

Consider requesting [psychology assessment](#). A mental health plan can assist funding.

Consider [urgent or routine neurology referral](#) for medication review or medication-related problems.

- **Dementia**

Dementia

- *Dementia incidence in Parkinson's disease increases with chronicity of disease. Parkinson's disease can cause:*
 - *problems with planning, sequencing, decision making, and visuospatial awareness*
 - *visual hallucinations.*
- *Medication side-effects can cause confusion and hallucinations.*
- *Request assessment from [NDIS](#) or [ACAT](#) for access to services to assist staying in the home.*

- **Communication problems**

Communication problems

Common problems can be:

- verbal – microphonia, monotone, huskiness, destination, dysarthria, rapid and slow speech pattern.
- non-verbal – facial expression, body language and writing disorders.

Consider requesting speech language therapy and occupational therapy assessment.

2. Constipation

Constipation

Constipation is common to Parkinson's disease due to effects on the gastrointestinal system, mobility, and diet, as well as medication side-effects.

3. Employment problems

Employment problems

It is common for people to be in employment when initially diagnosed. Consider requesting:

- disability employment services such as [JobSearch](#) or [Centrelink](#).
- occupational therapy assessment.

- **Oral and dental problems**

Oral and dental problems

Oral and dental health problems occur due to motor and mental difficulty with oral hygiene, motor disorders such as teeth grinding, clenching dyskinesia of the mouth and face, sialorrhea, and xerostomia.

Encourage attention to hygiene and regular dental visits. Consider requesting occupational therapy assessment.

- **Pain disorders**

Pain disorders

Pain can occur in up to 70% of people with Parkinson's disease, and is often an early symptom. Pain can be cramping, numbness, burning, or a deep ache, and is often caused by muscle rigidity and mobility disorders.

Consider requesting physiotherapy assessment, occupational therapy assessment, or a pain specialist assessment.

- **Sleep disorders**

Sleep disorders

Sleep disorders can be debilitating due to bed mobility problems, rapid eye movement behaviour disorder, restless leg syndrome, sleep apnoea, sleep

fragmentation, vivid dreams and nightmares. It can cause daytime fatigue, excessive daytime sleepiness, and sleep attacks.

Consider requesting sleep assessment, occupational therapy assessment, or sleep psychology assessment.

- **Mobility disorders**

Mobility disorders

Mobility disorders include changes to gait, problems initiating movement, rigidity, movement disorders, and falls. They can be related to side-effects of Parkinson's disease medications.

Consider requesting early physiotherapy assessment, occupational therapy assessment, and exercise physiology assessment.

11. Arrange **supports** for patient and family. Request early assessment from:

Supports

- Physiotherapy, occupational therapy, speech language therapy, exercise physiology.
- [Taking control of affairs](#)
 - [NDIS](#) if aged < 65 years.
 - [ACAT](#) if aged > 65 years.

6. Consider end of life issues, [advance care planning](#), or [palliative care assessment](#).

Referral

- If any **red flags**, arrange immediate referral to the [Emergency Department](#) via ambulance.
- Request [urgent or routine neurology referral](#) for:
 - confirmation of diagnosis.
 - development of a management plan.
 - management of difficult late stage symptoms.
 - regular medication review or medication-related problems.
- If the patient is aged > 65 years, request early assessment from [ACAT](#).
- If the patient is aged < 65 years, request early assessment from [NDIS](#).
- If late-stage Parkinson's disease, consider [palliative care services](#).
- To manage patient supports and non-motor symptoms, request services as needed:
 - [Psychology assessment](#)
 - [ACAT](#) or [NDIS](#) assessment
 - Speech language therapy
 - Occupational therapy assessment
 - Physiotherapy assessment
 - Pain specialist assessment
 - Exercise physiology
 - Sleep assessment

Information

For health professionals

Further information

- Austroads – [Assessing Fitness to Drive](#)
- bpacnz – [The Management of Parkinson's Disease: Which Treatments To Start and When?](#)
- Medical Journal of Australia – [Current Concepts in the Management of Parkinson Disease](#)

For patients

[Parkinson's Victoria:](#)

- [Peer support for People Living with Parkinson's, Their Family and Carers](#)
- [Understanding Parkinson's](#)

References

1. Parkinson's Queensland. Springwood: Parkinson's Queensland; [About Parkinson's](#). [date unknown]. [cited 2019 Sep 01].
2. Ayton D, Ayton S, Barker AL, Bush AI, Warren N. [Parkinson's disease prevalence and the association with rurality and agricultural determinants](#). Parkinsonism Relat. Disord. 2019 Apr;61:198-202.

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