Rotigotine transdermal patch (Neupro) for Parkinson’s disease
(ro-TI-go-teen)

**KEY POINTS**

Rotigotine is a non-ergot-derived dopamine agonist for treating the symptoms of Parkinson’s disease
The PBS listing is restricted to adjunctive therapy in people being treated with a levodopa–decarboxylase inhibitor (DCI) combination.

Rotigotine adjunctive therapy reduces ‘off time’ to a similar extent as pramipexole in people not well controlled by levodopa
In trials rotigotine adjunctive therapy significantly reduced off-time compared with levodopa alone.

Adjunctive therapy may increase levodopa-associated adverse events such as dyskinesia
Hallucinations, peripheral oedema and application or instillation-site reactions were increased in trials of rotigotine.

Sleep attacks and compulsive behaviour have been reported with rotigotine and other dopamine agonists
Before starting treatment assess patients for factors that may increase risk of drowsiness, and question patients about sleep routinely during checkups.

Ensure that patients and carers know how to use and dispose of rotigotine patches
Use the release rate to avoid confusion when discussing patch strength with patients and their carers.

Monitor blood pressure of people treated with rotigotine
Dopamine agonists can increase the risk of postural or orthostatic hypotension.

**PBS listing**

**Restricted benefit**
Parkinson’s disease.

As adjunctive therapy in a patient being treated with a levodopa–DCI combination.

Note that the PBS listing is more restrictive than the TGA indication, which is for use as monotherapy or in combination with levodopa for the treatment of idiopathic Parkinson’s disease from early stage to advanced disease.

**What is it?**
Rotigotine is a non-ergot-derived dopamine agonist that is used to relieve the symptoms of Parkinson’s disease. It is thought to elicit its beneficial effect by acting on dopamine D3, D2 and D1 receptors.¹

It is formulated as a patch applied to the skin for 24 hours, during which time about 45% of the rotigotine in the patch is released.¹

Stable plasma concentrations of rotigotine are achieved in 1-2 days of the patch being worn for 24 hours, and are reduced by half 5-7 hours after the patch is removed.¹
Who is it for?
Rotigotine is PBS listed for use in people with Parkinson's disease already taking a levodopa–DCI combination, i.e. for use as adjunctive therapy. It is an alternative to oral treatment for patients who have difficulty swallowing or impaired gastric emptying or who prefer a once-daily patch to oral dosing.

Where does it fit?
There is no cure for Parkinson’s disease, so the two principles of treatment are to:

- attempt to keep the patient functioning for as long as possible with the minimum amount of medication
- individualise therapy according to stage of disease and predominant symptoms.2

An option for pharmacological management of Parkinson’s disease
Rotigotine is an alternative levodopa adjunctive treatment to pramipexole (another non-ergot-derived dopamine agonist), the MAO-B inhibitors rasagiline and selegiline, and the COMT inhibitor entacapone.

The use of a non-ergot-derived dopamine agonist is preferable to the use of ergot-derived dopamine agonists (such as cabergoline and pergolide) due to the increased risk of cardiac valve damage with these agents. If people are prescribed ergot-derived dopaminergic drugs, they need to be referred for echocardiography every 6 months.2

Not PBS listed for use as monotherapy
Rotigotine is only PBS listed for use as an adjunctive treatment to levodopa–DCI.4 The TGA-approved indication allows use of rotigotine for the treatment of idiopathic Parkinson’s disease, either as monotherapy or in combination with levodopa, from early stage to advanced disease.1

Advanced or later disease is defined by regulatory authorities and in clinical trials as the development of motor complications in patients treated with levodopa.5

Consider non-pharmacological management
Physiotherapy, occupational therapy, and speech and language therapy are important non-pharmacological treatment approaches,3 and are recommended for patients with Parkinson’s disease.5

Specific treatment goals of physiotherapy treatment in mid-phase Parkinson’s disease are:

- preventing inactivity and fear of falling
- improving physical capacity
- maintaining and improving activities, including transfers, body posture, reaching and grasping, balance and gait.

Specific treatment goals of physiotherapy treatment in late-phase Parkinson’s disease are the same as for mid-phase but also include maintaining vital functions and preventing pressure sores and contractures.6,7

Patients should have access to specialist nursing care where possible. Specialist nursing services can provide a continuing point of contact for support and a reliable source of information about social and clinical issues.5

How does it compare?
The efficacy and safety of rotigotine as an adjunct to levodopa–DCI were compared with those of levodopa–DCI alone in two placebo-controlled, double-blind, randomised controlled trials (the PREFER study, n = 351 and the CLEOPATRA-PD study, n = 506, also double dummy) in people with advanced Parkinson’s disease.8,9

In a randomised controlled trial rotigotine has only been directly compared with pramipexole (a PBS-listed, oral non-ergot-derived dopamine agonist).9 Therefore it is not known how it compares with other Parkinson’s disease treatments in terms of efficacy and safety.

In the PREFER study the efficacy and safety of the addition of up to 8 mg/24 hours (n = 120) or up to 12 mg/24 hours rotigotine (n = 111)b was compared with placebo (levodopa–DCI alone) (n = 120) in a 24-week study.8

In the CLEOPATRA-PD study the efficacy and safety of rotigotine (up to 16 mg/24 hours, n = 204) was compared with that of pramipexole up to 4.5 mg/day orally, n = 201)b and placebo (levodopa/DCI alone) (n = 101).9
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EVIDENCE SNAPSHOT

WHAT IS KNOWN ABOUT THIS DRUG?

Rotigotine efficacy as adjunctive therapy in advanced disease is non-inferior to that of cabergoline. In terms of reducing off-time as adjunctive therapy rotigotine is non-inferior to pramipexole.

Compared with treatment with levodopa–DCI, rotigotine adjunctive therapy significantly reduced off-time, by 1.8 hours and 1.2 hours (with doses of up to 8 mg/24 hours and 12 mg/24 hours, respectively) in the PREFER study and by 1.6 hours (with doses up to 16 mg/24 hours) in the CLEOPATRA-PD study, from the baseline mean daily off-time of 6–7 hours.

Reduction in off-time with rotigotine adjunctive therapy is similar to that with pramipexole.

More people treated with levodopa–DCI plus rotigotine reported ≥ 30% reductions in mean daily off-time than people treated with levodopa alone. However, non-inferiority of rotigotine compared with pramipexole was not shown for this outcome.

Rotigotine increased the incidence of adverse events, including dyskinesia, hallucinations and application/instillation-site reactions compared with levodopa–DCI alone.

WHAT DOES NPS SAY?

Rotigotine is an adjunctive therapy option for people with Parkinson’s disease who experience off-time inadequately controlled by levodopa alone.

There is no evidence that rotigotine is more effective than oral dopamine agonists in levodopa-treated patients. It is an alternative to oral treatment for patients who have difficulty swallowing or impaired gastric emptying or who prefer a once-daily patch to oral dosing.

More than one rotigotine patch may be required to achieve the optimal therapeutic dose.

AREAS OF UNCERTAINTY

There are no head-to-head trials comparing rotigotine with other Parkinson’s disease adjunctive treatments (apart from pramipexole), therefore it is not known how it compares with these other treatments in terms of efficacy and safety.

Long-term efficacy and safety data in people who start treatment with rotigotine as adjunctive therapy are limited.

Reduction in off-time with rotigotine adjunctive therapy is similar to that with pramipexole.

More people treated with levodopa–DCI plus rotigotine reported ≥ 30% reductions in mean daily off-time than people treated with levodopa alone. However, non-inferiority of rotigotine compared with pramipexole was not shown for this outcome.

Rotigotine increased the incidence of adverse events, including dyskinesia, hallucinations and application/instillation-site reactions compared with levodopa–DCI alone.

Both the PREFER study and the CLEOPATRA-PD study also investigated the proportion of trial participants who reported ≥ 30% reduction in off-time compared with baseline. In the PREFER study, 57% and 55% of trial participants in the 8 mg/24 hours and 12 mg/24 hours rotigotine arms, respectively, reported a ≥ 30% reduction in off-time from baseline compared with 35% of participants in the placebo arm. In the CLEOPATRA-PD study 60% of the rotigotine-treated patients reported a ≥ 30% reduction in off-time from baseline.
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Rotigotine has only been directly compared with pramipexole.

In the CLEOPATRA-PD study rotigotine met the criteria for non-inferiority to pramipexole for reducing off-time after 16 weeks of treatment in people with advanced Parkinson’s disease experiencing off-time. Rotigotine and pramipexole reduced off-time to a similar extent (Table 1). In this study rotigotine was not shown to be non-inferior to pramipexole for the proportion of trial participants who reported ≥30% reduction in off-time compared with baseline (Table 1).

**Improved morning function for people with Parkinson’s disease**

In the CLEOPATRA-PD study, patients using continuous transdermal rotigotine were as likely to wake in the off state as those taking pramipexole. This treatment effect was not a primary endpoint of the study and requires confirmation in further studies.

In the more recent RECOVER study, rotigotine significantly improved early morning motor function (measured by Unified Parkinson’s Disease Rating Scale [UPDRS] Part III [motor examination]) and nocturnal sleep disturbance (measured using the modified Parkinson’s Disease Sleep Scale [PDSS-2]) compared with placebo. This was a 4-week, randomised controlled trial (n = 287), including people with unsatisfactory morning control, in which around 80% of trial participants in both arms were taking levodopa-DCI. The range of disease severity and time since diagnosis among trial participants was very broad. Baseline adjusted mean UPDRS Part III scores measured early in the morning were improved with rotigotine by 3.55 points (95% CI 1.73 to 5.37, p = 0.0002) compared with placebo, and PDSS-2 scores were improved by 4.26 points (95% CI 2.45 to 6.08, p < 0.0001). Outcomes were similar in trial participants who were using rotigotine with or without levodopa.

**Lack of long-term efficacy data for off-time management**

No randomised controlled trial has assessed the efficacy of adjunctive rotigotine for managing off-time in people with Parkinson’s disease beyond 6 months. Open-label extension studies for the PREFER study (6 years, n = 258) and the CLEOPATRA-PD study (4 years, n = 395) have supported efficacy for adjunctive rotigotine in patients with advanced Parkinson’s disease up to 6 years.

**Indirect comparisons suggest similar efficacy to that of other dopamine agonists**

A meta-analysis comparing the benefits and harms of adjuvant treatments for Parkinson’s disease (by indirect comparisons with levodopa monotherapy as the common comparator) suggests that the efficacy of dopamine agonists, including rotigotine, at reducing off-time and motor symptoms may be better than that of MAO-B inhibitors such as rasagiline and selegiline and COMT inhibitors such as entacapone. This study also suggests that the effect of rotigotine is similar to that of other dopamine agonists at reducing off-time and improving the UPDRS activities of daily living score. However, rotigotine may be less effective than pramipexole at improving the UPDRS motor score. The risk of dyskinesia with rotigotine adjunctive therapy may be less than with pergolide or ropinirole.

<p>| Table 1. Reduction in daily off-time and percentage of patients achieving response |</p>
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Reduction in daily off-time (hours/day)</th>
<th>Response rate (% of patients achieving ≥30% reduction in off-time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotigotine</td>
<td>2.5f</td>
<td>59.7g</td>
</tr>
<tr>
<td>Pramipexole</td>
<td>2.8</td>
<td>67</td>
</tr>
<tr>
<td>Placebo</td>
<td>0.9</td>
<td>35</td>
</tr>
</tbody>
</table>

*Mean rotigotine dose 12.95 mg/24 hours; mean pramipexole dose 3.1 mg/day
f Non-inferior to pramipexole
g Rotigotine did not demonstrate non-inferiority to pramipexole
Safety issues

The safety profile of rotigotine appears to be similar to that of other dopamine agonists. Rotigotine increased the incidence of nausea, dizziness, dyskinesia, insomnia, vomiting and hallucinations compared with placebo or levodopa–DCI alone in a meta-analysis of data from monotherapy and adjunctive therapy studies.¹⁴

Nausea, vomiting and dizziness are very common adverse events (occurring in > 10% of study participants) but their incidence may decrease with time.¹,⁸ Other very common adverse events are somnolence, headaches and application-site reactions.¹

Common adverse events (experienced by 1–9% of study participants) are listed in the Product Information and are those typically associated with use of dopamine agonists.¹

For information about reporting adverse reactions to the TGA, or to report suspected adverse reactions online, see the TGA website (www.tga.gov.au/safety/problem.htm#medicine) or use the ‘Blue Card’ distributed three times a year with Australian Prescriber.

Indirect comparisons with levodopa monotherapy as the common comparator suggest that the incidence of adverse events is higher with dopamine agonists (odds ratio 1.5, 95% CI 1.2 to 1.8) and COMT inhibitors (OR 2.0, 95% CI 1.6 to 2.5) than with MAO-B inhibitors (OR 1.3, 95% CI 0.95 to 1.8).¹⁵

Limited long-term safety data available

Safety information for the use of rotigotine as an adjunct to levodopa in randomised controlled trials comes mainly from the PREFER study and the CLEOPATRA-PD study, which were of 6 and 4 months’ duration, respectively.⁸,⁹

In an open-label extension to the CLEOPATRA-PD study 48% of trial participants completed 4 years treatment, with 20% discontinuing treatment due to adverse events.¹²

In the open-label extension to the PREFER study, 45% of trial participants completed 6 years of treatment, with 28% discontinuing treatment due to adverse events.¹²

Rotigotine adjunctive therapy may increase incidence of dyskinesia and hallucinations

As described for other dopamine agonists, rotigotine may potentiate the dopaminergic adverse reactions of levodopa and may cause and/or exacerbate pre-existing dyskinesia and hallucinations.¹

In adjunctive therapy trials, dyskinesia and hallucinations were more common in patients receiving rotigotine and levodopa than in those receiving levodopa alone.⁸,⁹

In the PREFER study 14% and 17% of trial participants in the rotigotine 8 mg/24 hour and 12 mg/24 hour arms, respectively, reported experiencing dyskinesia, compared with 7% in the placebo arm.⁸

In the CLEOPATRA-PD study dyskinesia was reported by 12% of trial participants in the rotigotine arm compared with 3% in the placebo arm. Dyskinesia was reported in 15% of people taking pramipexole.⁹

Incidence of hallucinations was higher in people taking rotigotine than placebo in both key trials.⁸,⁹

In the PREFER study reports of hallucinations were also increased in trial participants in the 12 mg/24 hour arm compared with those in the 8 mg/24 hour arms (14% vs 7%).⁸

Application-site reactions very common

During clinical trials of rotigotine more than one-third of patients experienced application-site reactions (including itching, redness and burning), leading to discontinuation in 4% of patients.¹

The incidence increased with patch size and rotigotine dose.⁹

Patients should stop using rotigotine if a generalised skin reaction (e.g. allergic rash, including erythematous, macular or papular rash or pruritus) is observed.¹

Reports of sleep attack with rotigotine

As with other dopamine agonists, rotigotine may cause sudden onset of sleep.¹⁵⁻¹⁷ Somnolence is a very common occurrence in people taking rotigotine and causes people to fall asleep while engaged in activities of daily living. Somnolence events have been reported as late as 1 year after starting treatment.¹ In some cases this can occur without warning (‘sleep attack’).¹
One patient using a 6 mg/24 hours rotigotine patch experienced sudden onset of sleep while driving, and another using an 8 mg/24 hours rotigotine patch reported a brief loss of consciousness while driving.15

Before starting treatment with rotigotine advise patients of the risk of drowsiness and ask specific questions to determine whether they have pre-existing factors that may increase the risk. These factors include concomitant use of sedating medications and the presence of sleeping disorders.1

Advise patients not to drive, use tools or operate machinery until the effects of rotigotine are known. Patients who have had a sleep attack should discontinue rotigotine but if a decision is made to continue they should not drive or engage in activities where being alert is important for their safety or the safety of others (see ‘Information for patients’).1

Continually assess patients for drowsiness or sleepiness, as they may not acknowledge these symptoms unless directly questioned. The dose may need to be reduced, or the drug withdrawn, in patients experiencing drowsiness or sleepiness. It is currently not known whether reducing the dose will stop patients falling asleep while engaged in activities of daily living.1

**Potential for compulsive behaviours**

People treated with dopamine agonists, including rotigotine, have reported compulsive behaviours such as increased libido, hypersexuality, repetitive meaningless actions (punding), binge eating and pathological gambling.18–22 These symptoms are generally reversible on rotigotine dose reduction or discontinuation.1

In a safety analysis of rotigotine, pathological gambling was the most frequently reported compulsive behaviour.23 It has been described in case reports, along with punding and hypersexuality, in patients treated with adjunctive rotigotine.24 The incidence of increased libido, hypersexuality, punding and pathological gambling in studies of patients treated with rotigotine was 0.1% to 1%; the incidence of binge eating was 0.01% to 0.1%.

Inform patients and carers about the risk of compulsive behaviour and ask about the development of new or increased urges while being treated with rotigotine.

**Perform regular cardiac review as part of physical examination**

Cabergoline and pergolide (ergot-derived dopamine agonists) increase the risk of valvular heart disease, but it is not known if this is true of rotigotine.25,26

The incidence of cardiac valve abnormalities was similar between rotigotine and placebo treatment groups in controlled trials, but this finding should be interpreted with caution because of the small sample size and short duration of studies. Cardiac valve abnormalities have been observed in open-label trials of rotigotine.1

Perform regular cardiovascular review as part of a physical examination of people taking rotigotine, including (as recommended for patients taking pergolide) echocardiogram to test for potential presence of valvular disease, with clinical diagnostic monitoring for the development of cardiac valvular disease or fibrosis, as appropriate.27

After the initial echocardiogram before starting treatment, the next echocardiogram should occur within the first 3–6 months of treatment. Subsequent echocardiograms should occur every 6–12 months.27

**Monitor blood pressure**

Monitor the blood pressure of people taking rotigotine, especially at the beginning of treatment, due to the potential risk of postural or orthostatic hypotension associated with use of dopamine agonists.1

**Assess patients for visual abnormalities**

Visual disturbance and eye conditions have been reported in open-label trials and their incidence was increased in people taking rotigotine compared with controls during placebo-controlled trials.1 In addition, there is a potential risk of retinal degeneration.1 Ophthalmological monitoring is recommended at regular intervals for early detection of visual abnormalities.1,28
Periodically examine the skin of people with Parkinson's disease

People with Parkinson's disease are at increased risk of developing melanoma (around sixfold higher), and possibly other skin cancers compared with the general population, and should undergo periodic skin examinations.

It is unclear whether this risk is increased by Parkinson's disease or any specific Parkinson's disease therapies. Periodic skin examinations should be performed by appropriately qualified individuals (e.g. dermatologists).

Rotigotine not for use in pregnant women

Do not use rotigotine during pregnancy or breastfeeding due to lack of data on possible adverse effects.

Dosing issues

PBS-listed rotigotine transdermal patches are available in three strengths. A fourth strength of 8 mg/24 hours is marketed in Australia but is not PBS listed. The doses are expressed as milligrams of rotigotine released over a 24-hour period (the nominal release rate; see Table 2). To avoid confusion use the release rate when discussing patch strength with patients and their carers.

Rotigotine patches must be stored in a refrigerator (between 2°C and 8°C), but not frozen. Each patch should be applied to the skin for 24 hours and changed at the same time each day. The application site should be rotated and the same site not used within 14 days.

Increase rotigotine dose gradually

Start at a dose of 4 mg/24 hours in levodopa-treated patients with advanced Parkinson's disease. Increase as needed by 2 mg/24 hours every 7 days to the clinically effective dose. Note that the optimal therapeutic dose may require use of more than one patch at a time (i.e. if > 6 mg/24 hours is required). The maximum rotigotine dose is 16 mg/24 hours.

Caution advised for people with severe hepatic impairment

Dose adjustment is not necessary in people with mild to moderate hepatic impairment or mild to severe renal impairment, including those requiring dialysis. However, rotigotine may accumulate if there is an acute decline in renal function. Rotigotine has not been tested in people with severe hepatic impairment and caution is advised.

Missed doses

If the patient forgets to attach a patch at the usual time of day, or if a patch becomes unattached, another patch should be attached for the remainder of the day.

Assess response to treatment every 2–3 months

UK guidelines recommend patient follow-up every 2–3 months to assess treatment response in patients with later stages of Parkinson's disease. Consider switching to another dopamine agonist if symptoms are not well controlled by rotigotine, or if adverse effects prevent titration to an effective dose.

Taper withdrawal

Withdraw rotigotine therapy gradually (by 2 mg/24 hours every other day) to prevent symptoms resembling neuroleptic malignant syndrome. Patients prescribed rotigotine patches with nominal release rates of 4 mg/24 hours, 6 mg/24 hours (or 8 mg/24 hours), or combinations thereof, will require an additional pack of 2 mg/24 hours rotigotine patches to taper the dose appropriately.

<table>
<thead>
<tr>
<th>Nominal release rate</th>
<th>Rotigotine content per patch</th>
<th>Patch surface area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 mg/24 hours</td>
<td>4.5 mg</td>
<td>10 cm²</td>
</tr>
<tr>
<td>4 mg/24 hours</td>
<td>9 mg</td>
<td>20 cm²</td>
</tr>
<tr>
<td>6 mg/24 hours</td>
<td>13.5 mg</td>
<td>30 cm²</td>
</tr>
<tr>
<td>8 mg/24 hours</td>
<td>18 mg</td>
<td>40 cm²</td>
</tr>
<tr>
<td>h Not PBS listed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2.

Rotigotine patch characteristics

h Not PBS listed
Avoid centrally acting dopamine agonists and neuroleptics
Avoid concomitant use of centrally acting dopamine antagonists (e.g. antipsychotics, neuroleptics and metoclopramide) because they can reduce the effects of dopamine agonists.1

Because of possible additive effects, caution is advised before using rotigotine in patients taking sedating medicinal products or other CNS depressants (e.g. benzodiazepines, antipsychotics, antidepressants) or alcohol.1

Remove rotigotine patches before MRI scans or cardioversion
Rotigotine transdermal patches contain aluminium and can overheat during an MRI scan, causing skin burns in the immediate area of the patch. Advise patients and carers to remove and dispose of patches before MRI or cardioversion (see ‘Information for patients’),1 and to replace the patch after the procedure.

Reason for PBS listing
The PBAC recommended listing of rotigotine transdermal patches on the PBS on the basis of non-inferiority to cabergoline in levodopa-treated patients with motor complications.4 The PBAC considered that there were probably fewer serious safety issues associated with the use of rotigotine compared with cabergoline, but they highlighted that the absolute magnitude of the benefit was unclear.33

The appropriate equi-effective daily doses were considered to be 8.8 mg rotigotine to 3.42 mg cabergoline.33

The PBAC was concerned that information relating to the relative incidence of important adverse events including sleep attacks, ophthalmological adverse reactions and fibrosis was incomplete.33

Information for patients
Advise patients about safety issues before prescribing rotigotine patches.

▸ Rotigotine can cause sudden onset of sleep (sleep attack) without warning signs; avoid driving or using machinery until the effects of rotigotine are known.

▸ If a sleep attack occurs, patients who continue to take rotigotine should not drive or undertake activities where being alert is important.

▸ Be aware that sedatives or alcohol may worsen symptoms of sleepiness or drowsiness.

▸ There is a risk of compulsive or addictive behaviours when using rotigotine.

▸ Avoid applying external sources of heat (e.g. hot water bottle or heat pad) to the patch, as it may increase rotigotine absorption through the skin.

▸ Do not stop rotigotine patches without talking to a doctor.

▸ Store patches in the refrigerator (do not freeze), out of the reach of children.

▸ Apply the patch at the same time each day to clean, dry, healthy skin on the abdomen, thigh, hip, flank, shoulder or upper arm. Press down firmly with the palm of the hand for at least 1 minute to make sure the patch sticks well.

▸ Rotate the application site so that the same site is not used within 14 days — it may be helpful to keep a written record of patch application sites.

▸ Do not cut or divide rotigotine patches.

▸ After removal, fold the used patch in half, so that the adhesive layer sticks together, place in the original sachet and dispose out of the reach of children.

Discuss the Neupro Consumer Medicine Information (CMI) leaflet with the patient. The CMI contains a series of illustrations showing how the patch should be applied. Parkinson’s Australia (www.parkinsons.org.au) offers information and support for people with Parkinson’s disease and their carers. Services and support groups are available at both State and local level.
REFERENCES

27. Aspen Pharmacare Australia Pty Ltd. PERMAX (pergolide mesylate) Product Information. 16 March 2009.
33. Australian Government Department of Health and Ageing. Public summary document by meeting, for rotigotine, transdermal patch, 4.5 mg (releasing approximately 2 mg per 24 hours), 9 mg (releasing approximately 4 mg per 24 hours), 13.5 mg (releasing approximately 6 mg per 24 hours), 18 mg (releasing approximately 8 mg per 24 hours), Neupro March 2008. http://www.health.gov.au/internet/main/publishing.nsf/Content/pbac-psd-mtgmar08 (accessed 10 June 2013).

The information contained in NPS RADAR is derived from a critical analysis of a wide range of authoritative evidence and is current at the time of publication. Any treatment decisions based on the information provided in NPS RADAR should be made in the context of the clinical circumstances of each patient.

NPS RADAR articles may be updated when there is new evidence about safety or efficacy, or in case of regulatory or PBS listing changes.

Please refer to www.npsradar.org.au for the most recent version as well as any supplementary information.