

Approved Professional Information for Medicines for Human Use:

MEGLARAT PR

SCHEDULING STATUS

S6

1. NAME OF THE MEDICINE

MEGLARAT PR 18 mg prolonged-release tablets

MEGLARAT PR 27 mg prolonged-release tablets

MEGLARAT PR 36 mg prolonged-release tablets

MEGLARAT PR 54 mg prolonged-release tablets

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

MEGLARAT PR 18 mg prolonged-release tablets

Each prolonged-release tablet contains 18 mg methylphenidate hydrochloride equivalent to 15,6 mg of methylphenidate.

MEGLARAT PR 27 mg prolonged-release tablets

Each prolonged-release tablet contains 27 mg methylphenidate hydrochloride equivalent to 23,3 mg of methylphenidate.

MEGLARAT PR 36 mg prolonged-release tablets

Each prolonged-release tablet contains 36 mg methylphenidate hydrochloride equivalent to 31,1 mg of methylphenidate.

MEGLARAT PR 54 mg prolonged-release tablets

Each prolonged-release tablet contains 54 mg methylphenidate hydrochloride equivalent to 46,7 mg of methylphenidate.

Austell Pharmaceuticals (Pty) Ltd, 51/1.2/0293-6, MEGLARAT PR (18 mg, 27 mg, 36 mg and 54 mg), prolonged-release tablets

Contains sugar: lactose monohydrate.

MEGLARAT PR 18 mg prolonged-release tablet contains 193,50 mg lactose monohydrate.

MEGLARAT PR 27 mg prolonged-release tablet contains 194,25 mg lactose monohydrate.

MEGLARAT PR 36 mg prolonged-release tablet contains 187,50 mg lactose monohydrate.

MEGLARAT PR 54 mg prolonged-release tablet contains 174,00 mg lactose monohydrate.

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Prolonged-release tablet.

MEGLARAT PR 18 mg: Yellow, capsule-shaped, biconvex film-coated tablet with 2392 printed in black ink on one side.

MEGLARAT PR 27 mg: Grey, capsule-shaped, biconvex film-coated tablet with 2393 printed in black ink on one side.

MEGLARAT PR 36 mg: White, capsule-shaped, biconvex film-coated tablet with 2394 printed in black ink on one side.

MEGLARAT PR 54 mg: Red-brown, capsule-shaped, biconvex film-coated tablet with 2395 printed in black ink on one side.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

MEGLARAT PR is indicated for the treatment of attention deficit hyperactivity disorder (ADHD) in children and adolescents aged 6 – 17 and adults aged 18 to 65 who meet DSM-IV criteria for ADHD.

4.2 Posology and method of administration

Posology

Dosage should be individualised according to the need and response of each individual patient.

Patients new to methylphenidate

The recommended starting dose of MEGLARAT PR for patients who are not currently taking methylphenidate, or for patients who are on stimulants other than methylphenidate, is 18 mg once daily for children and adolescents and 18 or 36 mg once daily for adults.

Patients currently using methylphenidate

The recommended dose of MEGLARAT PR for patients who are currently taking methylphenidate three times daily at doses of 15 to 60 mg/day is provided in the Table 1. Dosing recommendations are based on current dose regimen and clinical judgement.

Table 1: Recommended dose conversion from other methylphenidate regimens to MEGLARAT PR

Previous Methylphenidate Daily Dose	Recommended MEGLARAT PR Dose
5 mg Methylphenidate hydrochloride twice daily or three times daily	18 mg once daily
10 mg Methylphenidate hydrochloride twice daily or three times daily	36 mg once daily
15 mg Methylphenidate hydrochloride twice daily or three times daily	54 mg once daily
20 mg Methylphenidate hydrochloride twice daily or three times daily	72 mg once daily

Clinical judgement should be used when selecting the dose for patients currently taking methylphenidate in other regimens.

Dosage may be adjusted in 18 mg increments to a maximum of 54 mg/day for children aged between 6 – 12 years and to a maximum of 72 mg for adolescents aged between 13 – 18 years and 108 mg in adults. In general, dosage adjustments may proceed at approximately weekly intervals.

Daily dosage above 54 mg is not recommended for children aged between 6 – 12 years. Daily dosage above 72 mg is not recommended for adolescents aged between 13 – 18 years. Daily dosage above 108 mg is not recommended in adults.

Maintenance/extended treatment

The long-term use of MEGLARAT PR has not been systematically evaluated in controlled clinical trials. The medical practitioner who elects the use of MEGLARAT PR for extended periods in patients with ADHD should periodically re-evaluate the long-term usefulness of the medicine for the individual patient with trials off medication to assess the patients' functioning without pharmacotherapy.

Dose reduction and discontinuation

If paradoxical aggravation of symptoms or other serious adverse events occur, the dosage should be reduced, or, if necessary, MEGLARAT PR should be discontinued.

Special populations

Elderly population

Use of MEGLARAT PR in elderly patients over 65 years has not been studied in controlled trials.

Paediatric population

MEGLARAT PR should not be used in patients under six years old. Sufficient data on the safety of long-term use of MEGLARAT PR is not yet available.

Method of administration

MEGLARAT PR is administered orally, once daily. As the effects has been shown to be present 12 hours after dosing, MEGLARAT PR should be taken in the morning.

MEGLARAT PR must be swallowed whole with adequate amounts of liquid and must not be chewed, divided or crushed.

MEGLARAT PR may be administered with or without food.

4.3 Contraindications

MEGLARAT PR is contraindicated in:

- Hypersensitivity to methylphenidate or to any of the excipients listed in section 6.1
- Glaucoma
- Pheochromocytoma
- During treatment with non-selective, irreversible monoamine oxidase (MAO) inhibitors, or within a minimum of 14 days of discontinuing MAOIs, due to the risk of hypertensive crisis (see section 4.5)
- Hyperthyroidism
- Diagnosis or history of severe depression, anorexia nervosa/anorexic disorders, suicidal tendencies, psychotic symptoms, severe mood disorders, mania, schizophrenia, psychopathic/borderline personality disorder
- Diagnosis or history of severe and episodic (Type I) Bipolar (affective) Disorder (that is not well-controlled)
- Pre-existing cardiovascular disorders including severe hypertension, heart failure, arterial occlusive disease, angina, haemodynamically significant congenital heart disease, cardiomyopathies, myocardial infarction, potentially life-threatening dysrhythmias and

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channelopathies (disorders caused by the dysfunction of ion channels) and QT prolongation either congenital, familial or caused by medication (see section 4.4)

- Pre-existing cerebrovascular disorders cerebral aneurysm, vascular abnormalities including vasculitis or stroke (see section 4.4)
- Marked anxiety, tension and agitation, since MEGLARAT PR may aggravate these symptoms (see section 4.4)
- Family history or diagnosis of Tourette's syndrome (see section 4.4)
- Pregnancy and lactation (see section 4.6).

4.4 Special warnings and precautions for use

MEGLARAT PR treatment is not indicated in all patients with ADHD and the decision to use the medicine must be based on a very thorough assessment of the severity and chronicity of the child's symptoms (for children in relation to the age) and not simply on the presence of one or more abnormal behavioural characteristics.

MEGLARAT PR should not be used for the treatment of attention-deficit or hyperactivity secondary to amenable causes, including acute stress reactions.

Long-term use (more than 12 months) in children and adolescents

The safety and efficacy of long-term use of methylphenidate has not been systematically evaluated in controlled trials. Methylphenidate treatment should not and need not, be indefinite. Methylphenidate treatment is usually discontinued during or after puberty. Patients on long-term therapy (i.e. over 12 months) must have careful ongoing monitoring according to the guidance in sections 4.2 and 4.4. for cardiovascular status, growth, appetite, development of *de novo* or worsening of pre-existing psychiatric disorders. Psychiatric disorders to monitor for are described below and include (but are not limited to) motor or vocal tics, aggressive or hostile behaviour, agitation, anxiety, depression, psychosis, mania, delusions, irritability, lack of spontaneity, withdrawal and excessive perseveration.

The medical practitioner who elects to use methylphenidate for extended periods (over 12 months) in children and adolescents with ADHD should periodically re-evaluate the long-term usefulness of the medicine for the individual patient with trial periods off medicine to assess the patient's functioning without pharmacotherapy. It is recommended that methylphenidate is de-challenged at least once yearly to assess the child's condition (preferably during times of school holidays). Improvement may be sustained when the medicine is either temporarily or permanently discontinued.

Use in the elderly

Methylphenidate should not be used in the elderly. Safety and efficacy have not been established in this age group.

Use in children under 6 years of age

Methylphenidate should not be used in children under the age of 6 years. Safety and efficacy in this age group has not been established.

Cardiovascular status

Patients who are being considered for treatment with stimulant medications should have a careful history (including assessment for a family history of sudden cardiac or unexplained death or malignant dysrhythmia) and physical exam to assess for the presence of cardiac disease, and should receive further specialist cardiac evaluation if initial findings suggest such history or disease. Patients who develop symptoms such as palpitations, exertional chest pain, unexplained syncope, dyspnoea or other symptoms suggestive of cardiac disease during methylphenidate treatment should undergo a prompt specialist cardiac evaluation.

Analyses of data from clinical trials of methylphenidate in children and adolescents with ADHD showed that patients using methylphenidate may commonly experience changes in diastolic and systolic blood pressure of over 10 mmHg relative to controls. The short- and long-term clinical consequences of these

cardiovascular effects in children and adolescents are not known. The possibility of clinical complications cannot be excluded as a result of the effects observed in the clinical trial data especially when treatment during childhood/adolescence is continued into adulthood. **Caution is indicated in treating patients whose underlying medical conditions might be compromised by increases in blood pressure or heart rate.** See section 4.3 for conditions in which methylphenidate treatment is contraindicated.

Cardiovascular status should be carefully monitored. Blood pressure and pulse should be recorded on a centile chart at each adjustment of dose and then at least every 6 months.

The use of methylphenidate is contraindicated in certain pre-existing cardiovascular disorders **unless specialist paediatric cardiac advice has been obtained (see section 4.3).**

Sudden death and pre-existing structural cardiac abnormalities or other serious cardiac disorders.

Sudden death has been reported in association with the use of stimulants of the central nervous system at usual doses in children, some of whom had structural cardiac abnormalities or other serious heart problems. Although some serious heart problems alone may carry an increased risk of sudden death, stimulant products are not recommended in children or adolescents with known structural cardiac abnormalities, cardiomyopathy, serious heart rhythm abnormalities, or other serious cardiac problems that may place them at increased vulnerability to the sympathomimetic effects of a stimulant medicine.

Misuse and cardiovascular events

Misuse of stimulants of the central nervous system may be associated with sudden death and other serious cardiovascular adverse events.

Cerebrovascular disorders

See section 4.3 for cerebrovascular conditions in which methylphenidate treatment is contraindicated.

Patients with additional risk factors (such as a history of cardiovascular disease, concomitant medications that elevate blood pressure) should be assessed at every visit for neurological signs and symptoms after initiating treatment with methylphenidate.

Cerebral vasculitis appears to be a very rare idiosyncratic reaction to methylphenidate exposure. There is little evidence to suggest that patients at higher risk can be identified and the initial onset of symptoms may be the first indication of an underlying clinical problem. Early diagnosis, based on a high index of suspicion, may allow the prompt withdrawal of methylphenidate and early treatment. The diagnosis should therefore be considered in any patient who develops new neurological symptoms that are consistent with cerebral ischemia during methylphenidate therapy. These symptoms could include severe headache, numbness, weakness, paralysis, and impairment of coordination, vision, speech, language or memory.

Treatment with methylphenidate is not contraindicated in patients with hemiplegic cerebral palsy.

Psychiatric disorders

Co-morbidity of psychiatric disorders in ADHD is common and should be taken into account when prescribing stimulant products. In the case of emergent psychiatric symptoms or exacerbation of pre-existing psychiatric disorders, methylphenidate should not be given unless the benefits outweigh the risks to the patient.

Development or worsening of psychiatric disorders should be monitored at every adjustment of dose, then at least every 6 months, and at every visit; discontinuation of treatment may be appropriate.

Exacerbation of pre-existing psychotic or manic symptoms

In psychotic patients, administration of methylphenidate may exacerbate symptoms of behavioural

disturbance and thought disorder.

Emergence of new psychotic or manic symptoms

Treatment-emergent psychotic symptoms (visual/tactile/auditory hallucinations and delusions) or mania in children and adolescents without prior history of psychotic illness or mania can be caused by methylphenidate at usual doses. If manic or psychotic symptoms occur, consideration should be given to a possible causal role for methylphenidate, and discontinuation of treatment may be appropriate.

Aggressive or hostile behaviour

The emergence or worsening of aggression or hostility can be caused by treatment with stimulants. Aggression has been reported in patients treated with methylphenidate (see section 4.8). Patients treated with methylphenidate should be closely monitored for the emergence or worsening of aggressive behaviour or hostility at treatment initiation, at every dose adjustment and then at least every 6 months and every visit. Medical practitioners should evaluate the need for adjustment of the treatment regimen in patients experiencing behaviour changes bearing in mind that upwards or downwards titration may be appropriate. Treatment interruption can be considered.

Suicidal tendency

Patients with emergent suicidal ideation or behaviour during treatment for ADHD should be evaluated immediately by their medical practitioner. Consideration should be given to the exacerbation of an underlying psychiatric condition and to a possible causal role of methylphenidate treatment. Treatment of an underlying psychiatric condition may be necessary, and consideration should be given to a possible discontinuation of methylphenidate.

Tics

Methylphenidate is associated with the onset or exacerbation of motor and verbal tics. Worsening of Tourette's syndrome has also been reported. Family history should be assessed and clinical evaluation

for tics or Tourette's syndrome in children should precede use of methylphenidate. Patients should be regularly monitored for the emergence or worsening of tics during treatment with methylphenidate.

Monitoring should be at every adjustment of dose and then at least every 6 months or every visit.

Anxiety, agitation or tension

Anxiety, agitation and tension have been reported in patients treated with methylphenidate (see section 4.8). Methylphenidate is associated with the worsening of pre-existing anxiety, agitation or tension and anxiety led to discontinuation of methylphenidate in some patients. Clinical evaluation for anxiety, agitation or tension should precede use of methylphenidate and patients should be **regularly monitored for the emergence or worsening of these symptoms during treatment, at every adjustment of dose and then at least every 6 months or every visit.**

Forms of bipolar disorder

Particular care should be taken in using methylphenidate to treat ADHD in patients with comorbid bipolar disorder (including untreated Type I Bipolar Disorder or other forms of bipolar disorder) because of concern for possible precipitation of a mixed/manic episode in such patients. Prior to initiating treatment with methylphenidate, patients with comorbid depressive symptoms should be adequately screened to determine if they are at risk for bipolar disorder; such screening should include a detailed psychiatric history, including a family history of suicide, bipolar disorder, and depression. **Close ongoing monitoring is essential in these patients (see above 'Psychiatric Disorders' and section 4.2). Patients should be monitored for symptoms at every adjustment of dose, then at least every 6 months and at every visit.**

Growth

Moderately reduced weight gain and growth retardation have been reported with the long-term use of methylphenidate in children.

The effects of methylphenidate on final height and final weight are currently unknown and being studied.

Growth should be monitored during methylphenidate treatment: height, weight and appetite should be recorded at least 6-monthly with maintenance of a growth chart. Patients who are not growing or gaining height or weight as expected may need to have their treatment interrupted.

Seizures

Methylphenidate should be used with caution in patients with epilepsy. Methylphenidate may lower the convulsive threshold in patients with prior history of seizures, in patients with prior EEG abnormalities in absence of seizures, and rarely in patients without a history of convulsions and no EEG abnormalities. If seizure frequency increases or new-onset seizures occur, methylphenidate should be discontinued.

Priapism

Prolonged and painful erections have been reported in association with methylphenidate products, mainly in association with a change in the methylphenidate treatment regimen. Patients who develop abnormally sustained or frequent and painful erections should seek immediate medical attention.

Use with serotonergic medicines

Serotonin syndrome has been reported following co-administration of methylphenidate with serotonergic medicines. If concomitant use of methylphenidate with a serotonergic medicine is warranted, prompt recognition of the symptoms of serotonin syndrome is important. These symptoms may include mental-status changes (e.g. agitation, hallucinations, coma), autonomic instability (e.g. tachycardia, labile blood pressure, hyperthermia), neuromuscular abnormalities (e.g. hyperreflexia, incoordination, rigidity), and/or gastrointestinal symptoms (e.g. nausea, vomiting, diarrhoea). Methylphenidate must be discontinued as soon as possible if serotonin syndrome is suspected.

Abuse, misuse and diversion

Patients should be carefully monitored for the risk of diversion, misuse and abuse of methylphenidate.

Methylphenidate should be used with caution in patients with known drug or alcohol dependency because of a potential for abuse, misuse or diversion.

Chronic abuse of methylphenidate can lead to marked tolerance and psychological dependence with varying degrees of abnormal behaviour. Frank psychotic episodes can occur, especially in response to parenteral abuse.

Patient age, the presence of risk factors for substance use disorder (such as co-morbid oppositional-defiant or conduct disorder and bipolar disorder), previous or current substance abuse should all be taken into account when deciding on a course of treatment for ADHD. Caution is called for in emotionally unstable patients, such as those with a history of drug or alcohol dependence, because such patients may increase the dosage on their own initiative.

For some high-risk substance abuse patients, methylphenidate or other stimulants may not be suitable and non-stimulant treatment should be considered.

Withdrawal

Careful supervision is required during medicine withdrawal, since this may unmask depression as well as chronic over-activity. Some patients may require long-term follow up.

Careful supervision is required during withdrawal from abusive use since severe depression may occur.

Fatigue

Methylphenidate should not be used for the prevention or treatment of normal fatigue states.

Choice of methylphenidate formulation

The choice of formulation of methylphenidate-containing product will have to be decided by the treating specialist on an individual basis and depends on the intended duration of effect.

Drug screening

This product contains methylphenidate which may induce a false positive laboratory test for amphetamines, particularly with immunoassay screen test.

Renal or hepatic insufficiency

There is no experience with the use of methylphenidate in patients with renal or hepatic insufficiency.

Haematological effects

The long-term safety of treatment with methylphenidate is not fully known. In the event of leukopenia, thrombocytopenia, anaemia or other alterations, including those indicative of serious renal or hepatic disorders, discontinuation of treatment should be considered.

Administration

Due to the prolonged-release design of the tablet, MEGLARAT PR should only be used in patients who are able to swallow the tablet whole. Patients should be informed that MEGLARAT PR must be swallowed whole with the aid of liquids. Tablets should not be chewed, broken, divided, or crushed.

Excipient lactose

This medicine contains lactose: patients with rare hereditary problems of galactose intolerance, lactase deficiency or glucose-galactose malabsorption should not take this medicine.

4.5 Interaction with other medicines and other forms of interaction

Pharmacokinetic interaction

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It is not known how methylphenidate may affect plasma concentrations of concomitantly administered medicines. Therefore, caution is recommended at combining methylphenidate with other medicines, especially those with a narrow therapeutic window.

Methylphenidate is not metabolised by cytochrome P450 to a clinically relevant extent. Inducers or inhibitors of cytochrome P450 are not expected to have any relevant impact on methylphenidate pharmacokinetics. Conversely, the d- and l- enantiomers of methylphenidate do not relevantly inhibit cytochrome P450 1A2, 2C8, 2C9, 2C19, 2D6, 2E1 or 3A.

However, there are reports indicating that methylphenidate may inhibit the metabolism of coumarin anticoagulants, anticonvulsants (e.g., phenobarbital, phenytoin, primidone), and some antidepressants (tricyclics and selective serotonin reuptake inhibitors). When starting or stopping treatment with methylphenidate, it may be necessary to adjust the dosage of these medicines already being taken and establish drug plasma concentrations (or for coumarin, coagulation times).

Urinary alkalinisers and acidifiers

The urinary excretion of methylphenidate is reduced by urinary alkalinisers, which may enhance or prolong its effects. Methylphenidate excretion is enhanced by urinary acidifiers.

Disulfiram

Disulfiram may inhibit the metabolism and the excretion of methylphenidate which may enhance or prolong its effects.

Pharmacodynamic interactions

Anti-hypertensive medicines

Methylphenidate may decrease the effectiveness of medicines used to treat hypertension.

Use with medicines that elevate blood pressure

Caution is advised in patients being treated with methylphenidate with any other medicine that can also elevate blood pressure (see also sections on cardiovascular and cerebrovascular conditions in section 4.4).

Because of possible hypertensive crisis, methylphenidate is contraindicated in patients being treated (currently or within the preceding 2 weeks) with non-selective, irreversible MAO-inhibitors (see section 4.3).

Use with alcohol

Alcohol may exacerbate the adverse CNS effect of psychoactive medicines, including methylphenidate. It is therefore advisable for patients to abstain from alcohol during treatment.

Use with serotonergic medicines

There have been reports of serotonin syndrome following co-administration of methylphenidate with serotonergic medicines. If concomitant use of methylphenidate with a serotonergic medicine is warranted, prompt recognition of the symptoms of serotonin syndrome is important (see section 4.4). Methylphenidate must be discontinued as soon as possible if serotonin syndrome is suspected.

Use with halogenated anaesthetics

There is a risk of sudden blood pressure increase during surgery. If surgery is planned, methylphenidate treatment should not be used on the day of surgery.

Use with centrally acting alpha-2 agonists (e.g. clonidine)

The long-term safety of using methylphenidate in combination with clonidine or other centrally acting alpha-2 agonists has not been systematically evaluated.

Use with dopaminergic medicines

Caution is recommended when administering methylphenidate with dopaminergic medicines, including antipsychotics.

Because a predominant action of methylphenidate is to increase extracellular dopamine levels, methylphenidate may be associated with pharmacodynamic interactions when co-administered with direct and indirect dopamine agonists (including DOPA and tricyclic antidepressants) or with dopamine antagonists including antipsychotics.

4.6 Fertility, pregnancy and lactation

Pregnancy

MEGLARAT PR should not be used in pregnancy as safety has not been established (see section 4.3).

Breastfeeding

Methylphenidate is excreted in human milk. MEGLARAT PR should not be used while breastfeeding (see section 4.3).

4.7 Effects on ability to drive and use machines

Methylphenidate can cause dizziness, drowsiness and visual disturbances including difficulties with accommodation, diplopia and blurred vision. It may have a moderate influence on the ability to drive and use machines. Patients should be warned of these possible effects and advised that if affected, they should avoid potentially hazardous activities such as driving or operating machinery.

This medicine can impair cognitive function and can affect a patient's ability to drive safely. When prescribing this medicine, patients should be told:

- The medicine is likely to affect your ability to drive
- Do not drive until you know how the medicine affects you.

4.8 Undesirable effects

The table below shows all adverse drug reactions (ADRs) observed during clinical trials of children, adolescents, and adults and post-market spontaneous reports with methylphenidate.

System Organ Class	Frequency		
	Frequent	Less Frequent	<u>Frequency unknown</u>
Infections and infestations	Nasopharyngitis, Upper respiratory tract infection#, Sinusitis#		
Blood and lymphatic system disorders		Anaemia†, Leucopenia†, Thrombocytopenia, Thrombocytopenic purpura	Pancytopenia
Immune system disorders		Hypersensitivity reactions such as Angioneurotic oedema, Anaphylactic reactions, Auricular swelling,	

		<p>Bullous conditions, Exfoliative conditions, Urticarias, Pruritus, Rashes, Eruptions</p>	
Metabolism and nutrition disorders	<p>Anorexia, Decreased appetite†, Moderately reduced weight and height gain during prolonged use in children*</p>		
Psychiatric disorders	<p>Insomnia, Nervousness, Affect lability, Aggression*, Agitation*, Anxiety*†, Depression*,</p>	<p>Psychotic disorders*, Auditory, visual and tactile hallucination*, Anger, Suicidal ideation*, Mood altered, Restlessness†, Tearfulness,</p>	<p>Delusions*†, Thought disturbances*, Dependence (Cases of abuse and dependence have been described, more often with</p>

	<p>Irritability, Abnormal behaviour, Mood swings, Tics*, Initial insomnia#, Depressed mood#, Depression#, Libido decreased#, Tension#, Bruxism#, Panic attack#</p>	<p>Worsening of pre-existing tics of Tourette's syndrome*, Logorrhoea, Hypervigilance, Sleep disorder, Mania*†, Disorientation, Libido disorder, Confusional state† Suicidal attempt (including completed suicide)* †, Transient depressed mood*, Abnormal thinking, Apathy†, Repetitive behaviours, Over-focussing</p>	<p>immediate release formulations)</p>
<p>Nervous system disorders</p>	<p>Headache, Dizziness, Dyskinesia,</p>	<p>Sedation, Tremor†, Lethargy#</p>	<p>Cerebrovascular disorders*†</p>

	Psychomotor hyperactivity, Somnolence, Paresthaesia#, Tension headache#	Convulsion, Choreo-athetoid movements, Reversible ischaemic neurological deficit, Neuroleptic malignant syndrome (NMS; Reports were poorly documented and in most cases, patients were also receiving other drugs, so the role of methylphenidate is unclear).	(including vasculitis, cerebral haemorrhages, cerebrovascular accidents, cerebral arteritis, cerebral occlusion), Grand mal convulsion*, Migraine†
Eye disorders	Accommodation disorder#	Blurred vision†, Dry eye#, Difficulties in visual accommodation, Visual impairment, Diplopia	Mydriasis
Ear and labyrinth disorders	Vertigo#		
Cardiac disorders	Dysrhythmia, Tachycardia, Palpitations	Chest pain, Angina Pectoris, Cardiac arrest, Myocardial infarction	Supra-ventricular tachycardia, Bradycardia, Ventricular extrasystoles†,

			Extrasystoles†
Vascular disorders	Hypertension	Hot flush#, Cerebral arteritis and/or occlusion, Peripheral coldness†, Raynaud's phenomenon	
Respiratory, thoracic and mediastinal disorders	Cough, Oropharyngeal pain	Dyspnoea†	
Gastrointestinal disorders	Upper abdominal pain, Diarrhoea, Nausea†, Abdominal discomfort, Vomiting, Dry mouth†, Dyspepsia#	Constipation†	
Hepatobiliary disorders		Abnormal liver function including acute hepatic failure and hepatic coma	

<p>Skin and subcutaneous tissue disorders</p>	<p>Alopecia, Pruritis, Rash, Urticaria</p>	<p>Angioneurotic oedema, Bullous conditions, Exfoliative conditions, Hyperhidrosist†, Macular rash, Erythema, Erythema multiforme, Exfoliative dermatitis, Fixed drug eruption</p>	
<p>Musculoskeletal and connective tissue disorders</p>	<p>Arthralgia, Muscle tightness#, Muscle spasms#</p>	<p>Myalgia†, Muscle twitching Muscle cramps</p>	
<p>Renal and urinary disorders</p>		<p>Haematuria, Pollakiuria,</p>	
<p>Reproductive system and breast disorders</p>	<p>Erectile dysfunction#</p>	<p>Gynaecomastia</p>	<p>Priapism*, Erection increased*, Prolonged erection*</p>

<p>General disorders and administration site conditions</p>	<p>Pyrexia, Growth retardation during prolonged use in children*, Fatigue†, Irritability#, Feeling jittery#, Asthenia#, Thirst#</p>	<p>Chest pain, Sudden cardiac death*</p>	<p>Chest discomfort†, Hyperpyrexia</p>
<p>Investigations</p>	<p>Changes in blood pressure and heart rate (usually an increase)*, Weight decreased*, Alanine aminotransferase increased#</p>	<p>Cardiac murmur*, Hepatic enzyme increased, Blood alkaline phosphatase increased, Blood bilirubin increased†, Platelet count decreased, White blood cell count abnormal</p>	

* See section 4.4

Frequency derived from adult clinical trials and not on data from trials in children and adolescents; may also be relevant for children and adolescents.

† Frequency derived from clinical trials in children and adolescent and reported at a higher frequency

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in clinical trials in adult patients.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare professionals are asked to report any suspected adverse reactions to SAHPRA via the “**6.04 Adverse Drug Reaction Reporting Form**”, found online under SAHPRA’s publications: <https://www.sahpra.org.za/Publications/Index/8>

Suspected adverse reactions can also be reported directly to the HCR via medsafety@ustell.co.za

4.9 Overdose

When treating patients with overdose, allowances must be made for the delayed release of methylphenidate from formulations with extended durations of action.

Signs and symptoms

Acute overdose, mainly due to overstimulation of the central and sympathetic nervous systems, may result in vomiting, agitation, tremors, hyperreflexia, muscle twitching, convulsions (may be followed by coma), euphoria, confusion, hallucinations, delirium, sweating, flushing, headache, hyperpyrexia, tachycardia, palpitations, cardiac dysrhythmias, hypertension, mydriasis, and dryness of mucous membranes.

Treatment

There is no specific antidote to methylphenidate overdosage.

Treatment consists of appropriate supportive measures.

The patient must be protected against self-injury and against external stimuli that would aggravate overstimulation already present. The efficacy of activated charcoal has not been established.

Intensive care must be provided to maintain adequate circulation and respiratory exchange; external cooling procedures may be required for hyperpyrexia.

Efficacy of peritoneal dialysis or extracorporeal haemodialysis for overdose of methylphenidate has not been established.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

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Pharmacological Classification/ Category and Class:

A.1.2 Psychoanaleptics (antidepressants)

Pharmacotherapeutic group: centrally acting sympathomimetics

ATC Code: N06BA04

Mechanism of action

Methylphenidate HCl is a mild central nervous system (CNS) stimulant. The mode of therapeutic action in Attention Deficit Hyperactivity Disorder (ADHD) is not known. Methylphenidate is thought to block the reuptake of noradrenaline and dopamine into the presynaptic neurone and increase the release of these monoamines into the extraneuronal space. Methylphenidate is a racemic mixture comprised of the d- and l-isomers. The d-isomer is more pharmacologically active than the l-isomer.

5.2 Pharmacokinetic properties

Absorption

Methylphenidate is readily absorbed. Following oral administration of methylphenidate prolonged-release tablets to adults the tablet coating dissolves, providing an initial maximum drug concentration at about 1 to 2 hours. The methylphenidate contained in the tablet core is gradually released over the next several hours. Peak plasma concentrations are achieved at about 6 to 8 hours, after which plasma levels of methylphenidate gradually decrease. Methylphenidate prolonged-release tablets taken once daily minimises the fluctuations between peak and trough concentrations associated with immediate-release methylphenidate three times daily. The extent of absorption of methylphenidate prolonged-release tablets once daily is generally comparable to conventional immediate release preparations.

Following the administration of methylphenidate prolonged-release tablets 18 mg once daily in 36 adults, the mean pharmacokinetic parameters were: C_{max} $3,7 \pm 1,0$ (ng/mL), t_{max} $6,8 \pm 1,8$ (h), AUC_{inf} $41,8 \pm 13,9$ (ng.h/mL), and $t_{1/2}$ $3,5 \pm 0,4$ (h).

No differences in the pharmacokinetics of methylphenidate prolonged-release tablets were noted following single and repeated once daily dosing, indicating no significant drug accumulation. The AUC and $t_{1/2}$ following repeated once daily dosing are similar to those following the first dose of methylphenidate prolonged-release tablets 18 mg.

Following administration of methylphenidate prolonged-release tablets in single doses of 18, 36, and 54 mg/day to adults, C_{max} and $AUC_{(0-inf)}$ of methylphenidate were proportional to dose.

Distribution

Plasma methylphenidate concentrations in adults decline biexponentially following oral administration. The half-life of methylphenidate in adults following oral administration of methylphenidate prolonged-release tablets was approximately 3,5 h. The rate of protein binding of methylphenidate and of its metabolites is approximately 15 %. The apparent volume of distribution of methylphenidate is approximately 13 litres/kg.

Biotransformation

In humans, methylphenidate is metabolised primarily by de-esterification to alpha-phenyl-piperidine acetic acid (PPA, approximately 50-fold the level of the unchanged substance) which has little or no pharmacologic activity. In adults the metabolism of methylphenidate prolonged-release tablets once daily as evaluated by metabolism to PPA is similar to that of methylphenidate three times daily. The metabolism of single and repeated once daily doses of methylphenidate prolonged-release tablets is similar.

Elimination

The elimination half-life of methylphenidate in adults following administration of methylphenidate prolonged-release tablets was approximately 3,5 hours. After oral administration, about 90 % of the

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dose is excreted in urine and 1 to 3 % in faeces, as metabolites within 48 to 96 hours. Small quantities of unchanged methylphenidate are recovered in urine (less than 1 %). The main urinary metabolite is alpha-phenyl-piperidine acetic acid (60 – 90 %).

After oral dosing of radiolabelled methylphenidate in humans, about 90 % of the radioactivity was recovered in urine. The main urinary metabolite was PPA, accounting for approximately 80 % of the dose.

Food Effects

In patients, there were no differences in either the pharmacokinetics or the pharmacodynamic performance of methylphenidate prolonged-release tablets when administered after a high fat breakfast or on an empty stomach.

Special Populations

Gender

In healthy adults, the mean dose-adjusted $AUC_{(0-\infty)}$ values for methylphenidate prolonged-release tablets were 36,7 ng.h/mL in men and 37,1 ng.h/mL in women, with no differences noted between the two groups.

Ethnicity

In healthy adults receiving methylphenidate prolonged-release tablets, dose-adjusted $AUC_{(0-\infty)}$ was consistent across ethnic groups; however, the sample size may have been insufficient to detect ethnic variations in pharmacokinetics.

Paediatric population

The pharmacokinetics of methylphenidate prolonged-release tablets has not been studied in children younger than 6 years of age.

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In children 7 – 12 years of age, the pharmacokinetics of methylphenidate prolonged-release tablets after 18, 36 and 54 mg were (mean \pm SD) were as follows:

Pharmacokinetic parameter	Dosage		
	18 mg	36 mg	54 mg
C _{max} (ng/mL)	6,0 \pm 1,3	11,3 \pm 2,6	15,0 \pm 3,8
t _{max} (h)	9,4 \pm 0,02	8,1 \pm 1,1	9,1 \pm 2,5
AUC _{0-11,5} (ng.h/mL)	50,4 \pm 7,8	87,7 \pm 18,2	121,5 \pm 37,3

Renal insufficiency

There is no experience with the use of methylphenidate prolonged-release tablets in patients with renal insufficiency. After oral administration of radiolabelled methylphenidate in humans, methylphenidate was extensively metabolised and approximately 80 % of the radioactivity was excreted in the urine in the form of PPA. Since renal clearance is not an important route of methylphenidate clearance, renal insufficiency is expected to have little effect on the pharmacokinetics of methylphenidate prolonged-release tablets.

Hepatic insufficiency

There is no experience with the use of methylphenidate prolonged-release tablets in patients with hepatic insufficiency.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Tablet content

Lactose monohydrate

Hypromellose

Silica, colloidal anhydrous

Magnesium stearate

Fumaric acid

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Methacrylic acid–methyl methacrylate copolymer

Triethyl citrate

Talc

Tablet coating

18 mg prolonged-release tablets:

Polyvinyl alcohol, part hydrolysed

Macrogol (3350)

Talc

Titanium dioxide (E171)

Iron oxide yellow (E172)

Iron oxide red (E172)

27 mg prolonged-release tablets:

Polyvinyl alcohol, part hydrolysed

Macrogol (3350)

Talc

Titanium dioxide (E171)

Iron oxide yellow (E172)

Indigo carmine aluminium lake (E132)

Iron oxide black (E172)

36 mg prolonged-release tablets:

Polyvinyl alcohol, part hydrolysed

Macrogol (3350)

Talc

Titanium dioxide (E171)

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54 mg prolonged-release tablets:

Polyvinyl alcohol, part hydrolysed

Macrogol (3350)

Talc

Titanium dioxide (E171)

Iron oxide red (E172)

Printing ink

Shellac glaze

Iron oxide black (E172)

Propylene glycol

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

24 months

Shelf life after first opening the bottle:

18 mg tablets: 3 months

27 mg tablets: 6 months

36 mg tablets: 6 months

54 mg tablets: 6 months

6.4 Special precautions for storage

Store at or below 30 °C in original container. Keep the bottle tightly closed to protect from moisture.

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6.5 Nature and contents of container

High-density polyethylene (HDPE) bottle sealed with a child-resistant polypropylene (PP) closure with silica gel desiccant integrated into the closure.

18 mg tablets: 28, 30 or 90 prolonged-release tablets.

27 mg tablets: 28, 30 or 100 prolonged-release tablets.

36 mg tablets: 28, 30 or 100 prolonged-release tablets.

54 mg tablets: 28, 30 or 100 prolonged-release tablets.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal

No special requirements.

7. HOLDER OF CERTIFICATE OF REGISTRATION

Austell Pharmaceuticals (Pty) Ltd

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8. REGISTRATION NUMBERS

MEGLARAT PR 18 mg prolonged-release tablet: 51/1.2/0293

MEGLARAT PR 27 mg prolonged-release tablet: 51/1.2/0294

MEGLARAT PR 36 mg prolonged-release tablet: 51/1.2/0295

MEGLARAT PR 54 mg prolonged-release tablet: 51/1.2/0296

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9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

20 April 2021

10. DATE OF REVISION OF THE TEXT

26 November 2024