

# ANTINAUS

## *Prochlorperazine maleate 5mg Tablets*

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### **Presentation**

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White biconvex tablets, 9/32" (7.1mm) diameter, imprinted PM/5 on one side.

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### **Description**

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Prochlorperazine is 2-chloro-10-(3-(4-methyl piperazinyl)-propyl) phenothiazine. Prochlorperazine maleate contains 62% of the active base

The maleate is an odourless, nonhygroscopic, white or almost white, fine granular powder, which becomes coloured on exposure to light. It is sparingly soluble (about 0.1%) in water, ethanol or methanol and is insoluble in ether or chloroform.

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### **Pharmacology**

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Prochlorperazine is a phenothiazine with a piperazine moiety in the side chain. It possesses strong antiemetic and antipsychotic activity with less sedative action than chlorpromazine.

#### ***Pharmacodynamics***

As with other phenothiazines, prochlorperazine has actions on several neurotransmitter systems:

1. Antidopamine action, which probably contributes to both the therapeutic effect and unwanted effects including extrapyramidal disorders and endocrine disturbances.
2.  $\alpha$ -Adrenoreceptor antagonism, which contributes to cardiovascular side effects such as orthostatic hypotension and reflex tachycardia.
3. Potentiation of noradrenaline by blocking its reuptake into nerve terminals.
4. Weak anticholinergic action.
5. Weak antihistamine action.
6. Weak serotonin antagonism.

Prochlorperazine also has an effect on temperature control and blocks conditioned avoidance responses.

#### ***Pharmacokinetics***

There are few published data on prochlorperazine pharmacokinetics in the human. Most studies have been done in rats and dose levels do not correspond to those used clinically and metabolic pathways may differ. Similar overall pharmacokinetic patterns however would occur in the human.

Prochlorperazine is well absorbed from the GI tract in rats but absorption is slowed in repeatedly treated animals. The drug is widely distributed to tissues including the brain, fat, kidney, heart and skin and is stored in reticuloendothelial tissues. Phenothiazines are metabolised primarily in the liver and are subject to enterohepatic circulation. Excretion is

mainly in the faeces. Only a very small amount (approx. 0.1%) of prochlorperazine and its metabolites are excreted in the first 24 hours in the urine and the drug may continue to be excreted in the urine for up to 3 weeks after cessation of long term therapy. The elimination half-life is approximately 24 hours, presumably due to its enterohepatic circulation.

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## **Indications**

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ANTINAUS is used in vertigo due to Meniere's syndrome, labyrinthitis and other causes, and for nausea and vomiting from whatever cause. It may also be used for migraine, schizophrenia (particularly in the chronic stage), acute mania and as an adjunct to the short term management of anxiety.

For the treatment of nausea associated with migraine. (This indication only is classified Pharmacist Only).

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## **Dosage and Administration**

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### ***Nausea and Vomiting***

#### **Adults**

Prevention of nausea and vomiting: 5 or 10mg two or three times daily.

Treatment of nausea and vomiting: 20mg immediately followed, if necessary, by 10mg two hours later.

#### **Children**

Prevention and treatment of nausea and vomiting: if it is considered unavoidable to use prochlorperazine for a child, the dosage is 0.25mg/kg bodyweight, two or three times a day.

### ***Vertigo and Meniere's disease***

#### **Adults**

5mg three times a day, increasing if necessary to a total of 30mg daily. After several weeks dosage may be reduced gradually to 5-10mg daily.

### ***Adjunct in the short-term management of anxiety***

#### **Adults**

10-20mg daily in divided doses initially but this may be increased if necessary to a maximum of 40mg daily in divided doses.

### ***Schizophrenia and other psychotic disorders***

#### **Adults**

Usual effective daily oral dosage is in the order of 75-100mg daily. Patients vary widely in response. The following schedule is suggested:

Initially 12.5mg twice daily for 7 days, the daily amount being subsequently increased by 12.5mg at four to seven day intervals until a satisfactory response is obtained. After some weeks at the effective dosage, an attempt should be made to reduce this dosage. Total daily amounts as small as 50mg or even 25mg have sometimes been found to be effective.

## Children

Prochlorperazine is not recommended for children weighing less than 10kg.

## Elderly

Prochlorperazine should be used cautiously in this group in psychotic disorders. Elderly patients susceptible to centrally acting medicines hence lower initial dosage is recommended. There is an increased risk of drug-induced Parkinsonism in the elderly, particularly after prolonged use. Correct initial diagnosis of the disorder is important. Care should also be taken not to confuse adverse effects of prochlorperazine, e.g. orthostatic hypotension with effects due to the primary disorder.

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## Contraindications

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Circulatory collapse, central nervous system depression (coma or drug intoxication), previous history of a hypersensitivity reaction (e.g. jaundice or blood dyscrasia) to phenothiazines especially to prochlorperazine, bone marrow depression.

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## Warnings and Precautions

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Prochlorperazine should be avoided in patients with renal dysfunction, Parkinson's disease, hypothyroidism, pheochromocytoma, myasthenia gravis and prostate hypertrophy.

Hypotension: The autonomic side effects of the piperazine derivatives are less troublesome than those of other phenothiazines, however care should be taken if prochlorperazine is used in the elderly or in patients undergoing surgery with spinal anaesthesia.

Epileptics: Piperazine derivatives are also less epileptogenic than other phenothiazines, but care should still be exercised in epileptic patients.

Anticholinergic effects: Prochlorperazine can cause problems due to anticholinergic effects, especially in the elderly (urinary difficulties, constipation and precipitation of acute narrow angle glaucoma), but to a lesser extent than with other phenothiazines.

Hypocalcaemia: It appears from a study of 5 hypocalcaemic patients with hypoparathyroidism that such patients are prone to acute dystonic reactions with prochlorperazine.

Sedative effect: Prochlorperazine may impair mental and physical activity especially during the first few days of therapy. Patients should be warned about activities requiring alertness.

Antiemetic effects: The antiemetic effects of prochlorperazine may mask signs of overdosage of toxic drugs or obscure the diagnosis of conditions such as intestinal obstruction, brain tumour.

Reye's Syndrome: The extrapyramidal symptoms which can occur secondary to prochlorperazine may be confused with the central nervous system signs of an undiagnosed primary disease responsible for the vomiting, e.g. Reye's Syndrome or other encephalopathy. The use of prochlorperazine and other potential hepatotoxins should be avoided in children and adolescents whose signs and symptoms suggest Reye's Syndrome.

Hypothermia: Severe hypothermia may occur during swimming in cold water or in patients receiving antipyretic therapy.

Liver disease: Caution should be used in patients with existing liver disease due to the extensive hepatic metabolism of prochlorperazine. A past history of jaundice resulting from phenothiazine therapy indicates a hypersensitivity reaction and there is a likelihood of cross sensitivity to other phenothiazines.

Tardive dyskinesia: Tardive dyskinesia may develop in patients on antipsychotic drugs. The disorder consists of repetitive involuntary movements of the tongue, face, mouth or jaw (e.g. protrusion of the tongue, puffing the cheeks, puckering of the mouth, chewing movements). The trunk and limbs are less frequently involved. It has been reported that fine vermicular movements of the tongue may be an early sign of the syndrome.

Both the risk of developing the syndrome and the likelihood that it will become irreversible are believed to increase as the duration of treatment and the total cumulative dose of the drug increases. Less commonly, the syndrome can develop after relatively brief treatment periods at low doses. The risk seems to be greater in elderly patients, especially females.

The syndrome may become clinically recognisable either during treatment, upon dosage reduction, or upon withdrawal of treatment. The dosage of antipsychotic drug should be reduced periodically (if clinically possible) and the patient observed for signs of the disorder, since the syndrome may be masked by a higher dose. In patients requiring long-term treatment, the smallest dose and the shortest duration of treatment producing a satisfactory clinical response should be sought.

There is no known effective treatment for tardive dyskinesia. Antiparkinsonian agents usually do not alleviate symptoms. It is suggested that antipsychotic agents be discontinued if symptoms of tardive dyskinesia appear.

Neuroleptic Malignant Syndrome: A potentially fatal syndrome called neuroleptic malignant syndrome has been reported in association with antipsychotic drugs. The syndrome is characterised by muscular rigidity, fever, hyperthermia, altered consciousness and autonomic instability (e.g. tachycardia, labile blood pressure, profuse sweating, dyspnoea).

The management of neuroleptic malignant syndrome should include immediate discontinuation of anti-psychotic drugs, intensive monitoring and treatment of symptoms, and treatment of any associated medical problems.

QT Interval: Very rare cases of QT interval prolongation have been reported. Neuroleptic phenothiazines may potentiate QT interval prolongation which increases the risk of onset of serious ventricular arrhythmias of the torsade de pointes type, which is potentially fatal (sudden death). QT prolongation is exacerbated, in particular, in the presence of bradycardia, hypokalemia, and congenital or acquired (i.e. drug induced) QT prolongation. If the clinical situation permits, medical and laboratory evaluations should be performed to rule out possible risk factors before initiating treatment with a neuroleptic agent and as deemed necessary during treatment (see Adverse Effects).

Cerebrovascular Events: An increased risk of cerebrovascular events has been reported in elderly patients with dementia treated with atypical antipsychotic drugs. An increase in the risk of cerebrovascular events with other antipsychotic drugs or other populations of patients cannot be excluded. Prochlorperazine should therefore be used with caution in patients with stroke risk factors.

Thromboembolism: Cases of venous thromboembolism, sometimes fatal, have been reported with antipsychotic drugs. Therefore, prochlorperazine should be used with caution in patients with risk factors for thromboembolism (see Adverse Effects).

Elderly Patients with Dementia-related Psychosis: Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. Although the causes of death in clinical trials with atypical antipsychotics were varied, most of the deaths appeared to be either cardiovascular (e.g., heart failure, sudden death) or infectious (e.g. pneumonia) in nature. Observational studies suggest that, similar to atypical antipsychotic drugs, treatment with conventional antipsychotic drugs may increase mortality. The extent to which the findings of increased mortality in observational studies may be attributed to the antipsychotic drug as opposed to some characteristic(s) of the patients is not clear. Risk factors that may predispose this patient population to increased risk of death when treated

with antipsychotics include age > 80 years, sedation, concomitant use of benzodiazepines, or presence of pulmonary conditions (e.g. pneumonia, with or without aspiration).

Hyperglycaemia: Hyperglycemia or intolerance to glucose has been reported in patients treated with prochlorperazine. Patients with an established diagnosis of diabetes mellitus or with risk factors for the development of diabetes who are started on prochlorperazine, should get appropriate glycaemic monitoring during treatment (see Adverse Effects)

### ***Use in pregnancy (Category C)***

When given in high doses during late pregnancy, phenothiazines have caused jaundice, hyperreflexia, hyporeflexia or prolonged extrapyramidal disturbances in the child. There is inadequate evidence of the safety of prochlorperazine in human pregnancy but it has been widely used for many years without apparent ill consequence. There is evidence of harmful effects in animals. Like other drugs it should be avoided in pregnancy unless the physician considers it essential. Neuroleptics may occasionally prolong labour and at such a time should be withheld until the cervix is dilated 3-4 cm. Possible adverse effects on the foetus include lethargy or paradoxical hyperexcitability, tremor and a low Apgar score.

### ***Use in lactation***

Trace amounts of another phenothiazine, chlorpromazine, have been detected in breast milk, but there is no information available for prochlorperazine. Consequently, it is not known whether it is excreted in breast milk nor whether it has a harmful effect on the newborn. Therefore, prochlorperazine is not recommended for nursing mothers unless the expected benefits outweigh any potential risk.

### ***Use in children***

Prochlorperazine is not recommended for use in children under 10 kg in weight or under 2 years of age as acute extrapyramidal reactions are more likely to occur.

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## **Adverse Effects**

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The following reactions have been reported for prochlorperazine or phenothiazines in general.

### **More common reactions**

Gastrointestinal Constipation, dry mouth.

Nervous System Drowsiness, akathisia, parkinsonism, (with dyskinesia, tremor and rigidity).

Ocular Blurred vision.

### **Less common reactions**

Biochemical abnormalities Elevated serum levels of bilirubin and hepatic enzymes may occur if the patient develops cholestatic jaundice.

Cardiovascular Hypotension, peripheral oedema, cardiac arrhythmias, ECG changes, QT interval prolongation. There have been isolated reports of sudden death, with possible causes of cardiac origin (see Precautions), as well as cases of unexplained sudden death, in patients receiving neuroleptic phenothiazines. Cases of venous thromboembolism, including cases of pulmonary embolism, sometimes fatal, and cases of deep vein thrombosis have been reported with antipsychotic drugs (see Precautions).

Dermatological Dermatitis or contact dermatitis, maculopapular eruptions, erythema multiforme, urticaria, photosensitivity, abnormal pigmentation.

Endocrine Endocrine disturbances including elevated prolactin levels, hyperglycaemia, hypoglycaemia, menstrual irregularities, galactorrhoea, gynaecomastia.

Gastrointestinal Paralytic ileus.

Genitourinary Urinary retention, inhibition of ejaculation.

Haematological Agranulocytosis, atypical lymphocytes, thrombocytopenia, leucopenia, aplastic anaemia.

Hepatic Cholestatic jaundice, liver damage.

Nervous System Acute dystonic reactions, seizures, EEG changes, headache, insomnia, catatonia, hyperpyrexia.

Ocular Pigmentary retinopathy.

Psychiatric Activation of psychotic symptoms.

Respiratory Respiratory depression.

In post marketing surveillance cases of hyperglycaemia or intolerance to glucose have been reported with antipsychotic phenothiazines (see Warnings and precautions)

### ***Serious or Life Threatening Reactions***

Prochlorperazine can cause very serious acute dystonic reactions in children leading to cyanosis from laryngospasm, apnoea requiring artificial ventilation, life-threatening tetanus like syndromes, coma and even death. These reactions can occur with a single therapeutic dose. For treatment, see Overdosage. Also, long-term phenothiazine therapy has been associated with ECG changes and life threatening cardiac arrhythmias.

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## **Interactions**

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Prochlorperazine may enhance the CNS depressant effects of alcohol and other depressant drugs, and potentiate the anticholinergic effects of atropinic agents and tricyclic antidepressants.

Simultaneous administration of desferrioxamine and prochlorperazine has been observed to induce a transient metabolic encephalopathy characterised by loss of consciousness for 48-72 hours.

Procarbazine has been reported to potentiate the extrapyramidal side effects encountered with the use of prochlorperazine. Phenothiazines have been reported both to impair and increase metabolism of phenytoin, with uncertain clinical significance. Patients on levodopa should not be given phenothiazines because the two drugs are physiologically antagonistic.

Phenothiazines can diminish the effect of oral anticoagulants. Concomitant administration of propranolol with phenothiazines results in increased plasma levels of both drugs. Phenothiazines may lower the convulsive threshold; dose adjustments of the anticonvulsants may be necessary.

Thiazide diuretics may accentuate the orthostatic hypotension that may occur with phenothiazines.

Anihypertensive effects of guanethidine and related compounds may be counteracted when phenothiazines are used concomitantly.

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## Overdosage

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### Symptoms

Overdosage with phenothiazines may cause CNS depression progressing from drowsiness to coma with areflexia. Patients with early or mild intoxication may experience restlessness, confusion and excitement. Other symptoms include hypotension, tachycardia, hypothermia, pupillary constriction, restlessness, tremor, muscle twitching, spasm or rigidity, convulsions, muscular hypotonia, difficulty in swallowing or breathing, cyanosis, and respiratory and/or vasomotor collapse, possibly with sudden apnoea. There is no information available regarding lethal dose in man.

### Treatment

1. **Acute dystonic reactions:** Intramuscular benztropine (or another antiparkinsonian agent) should be given. immediately (adults: 1 to 2 mg i.m., children: 0.2 mg i.m. initially with increments if necessary).
2. **Overdosage:** Emesis should not be induced, not only because the antiemetic action of prochlorperazine prevents the effect of the emetic agent, but also because the sedative and extra-pyramidal side effects increase the risk of pulmonary aspiration should vomiting occur. Management is generally supportive with particular attention to the possibility of obstructed ventilation, severe hypotension, hypothermia, cardiac arrhythmias, convulsions and prolonged deep sedation. Acute dystonic reactions usually occur early (if at all); treatment is with anticholinergic agents, as above.

Adrenaline must not be used as it may cause a paradoxical further lowering of blood pressure

Contact the Poisons Information Centre for advice on management of overdosage.

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## Pharmaceutical Precautions

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Protect from light. Store below 25°C.

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## Medicine Classification

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Pharmacist Only Medicine (only for the treatment of nausea associated with migraine): Blister packs of 10 tablets. Prescription Medicine: Blister packs of 100 tablets (not marketed) and 500 tablets.

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## Package Quantities

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Blister packs of 10 tablets, 100 tablets (not marketed), and 500 tablets.

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## Further Information

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Excipients: Lactose, Maize starch, Povidone, Microcrystalline cellulose, Magnesium stearate and Ethanol

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## Name and Address

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## **Date of Preparation**

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8 October 2009