Windel® Plus

Salbutamol Sulphate & Ipratropium Bromide

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Presentation

Windel® Plus: Each LDPE ampoule contains 3 ml isotonic, clear solution for inhalation of Salbutamol Sulphate BP equivalent to Salbutamol 2.5 mg and Ipratropium Bromide BP equivalent to Ipratropium 0.5 mg.

Description

Windel® Plus contains two active bronchodilating substances Salbutamol Sulphate and Ipratropium Bromide. Salbutamol Sulphate is a beta$_2$-adrenergic agent which acts on airway smooth muscle resulting in relaxation. Salbutamol relaxes all smooth muscle from the trachea to the terminal bronchioles and protects against all bronchoconstrictor challenges. Ipratropium Bromide is a quaternary ammonium compound with anticholinergic properties. In preclinical studies, it appears to inhibit vagally mediated reflexes by antagonising the action of acetylcholine, the transmitter agent released from the vagus nerve. Anticholinergics prevent the increase of intracellular concentration of cyclic guanosine monophosphate (cyclic GMP) caused by interaction of acetylcholine with muscarinic receptors on bronchial smooth muscle. The bronchodilation following inhalation of Ipratropium Bromide is primarily local and site specific to the lung and non systemic in nature. Windel® Plus provides simultaneous release of Ipratropium Bromide and Salbutamol allowing synergistic efficacy on the muscarinic and beta$_2$-adrenergic receptors in the airways to cause bronchodilation which is superior to that provided by each single agent and with no potentiation of adverse events.

Pharmacokinetics

Ipratropium Bromide is quickly absorbed after inhalation. The systemic bioavailability following inhalation is estimated to be less than 10% of the dose. Renal excretion of Ipratropium Bromide is given as 46% of the dose after intravenous administration. The half-life of the terminal elimination phase is about 1.6 hours as determined after intravenous administration. Elimination half-life of drug and metabolites is 3.6 hours as determined after radio labelling. Ipratropium Bromide does not penetrate the blood brain barrier.

Salbutamol Sulphate is rapidly and completely absorbed following administration either by inhaled or oral route. Peak plasma Salbutamol concentrations are seen within three hours of administration and it is excreted unchanged in the urine after 24 hours. The elimination half-life is 4 hours. Salbutamol will cross the blood brain barrier reaching concentrations amounting to about five percent of the plasma concentrations.

It has been shown that co-nebulisation of Ipratropium Bromide and Salbutamol Sulphate does not potentiate the systemic absorption of either component and that therefore the additive activity of Windel® Plus is due to the combined local effect on the lung following inhalation.

Indications and Uses

Windel® Plus is indicated for the treatment of reversible bronchospasm associated with obstructive airway diseases in patients who require more than a single bronchodilator.

Dosage and Administration

Windel® Plus inhalation solution in ampoule may be administered from a suitable nebuliser or an intermittent positive pressure ventilator.

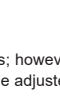
Adults (including elderly): Use one 3 ml ampoule in the nebulizer four times a day. Two additional treatments may be used per day, if needed.

Children: Use and dose must be determined by doctor.

Patients should be advised to consult a doctor or the nearest hospital immediately in the case of acute or rapidly worsening dyspnoea if additional inhalations do not produce an adequate improvement.

Steps of use:

Step 1: Twist off the top of the ampoule. Be careful to hold the ampoule upright.
Step 2: Squeeze the desired amount of the nebuliser solution into the nebuliser chamber.
Step 3: If dilution is needed follow the physician's direction.



Contraindications

Windel® Plus is contraindicated in patients with hypertrophic obstructive cardiomyopathy and tachyarrhythmia and in patients with a history of hypersensitivity to atropine or its derivatives, or to any other component of the product.

Precautions

In the case of acute, rapidly worsening dyspnoea a doctor should be consulted immediately. Immediate hypersensitivity reactions may occur after administration of Windel® Plus as demonstrated by rare cases of urticaria, angioedema, rash, bronchospasm and oropharyngeal oedema.

Pregnancy and Lactation

Pregnancy: Pregnancy category C. Animal studies with Salbutamol Sulphate have demonstrated a teratogenic effect. It is not known whether this medication is harmful to fetus. No evidence of abnormalities has been reported in women receiving albuterol during pregnancy. Windel® Plus should be used during pregnancy only if the potential benefit justifies.

Windel® Plus should be used with caution before childbirth in view of Salbutamol's inhibitory effects on uterine contractions.

Lactation: Salbutamol Sulphate and Ipratropium Bromide are probably excreted in breast milk and their effects on neonates are not known. Although lipid-insoluble quaternary bases pass into breast milk, it is unlikely that this will happen to any extent especially when taken by inhalation. However, because many drugs are excreted in breast milk, caution should be exercised when Windel® Plus is administered to a nursing woman.

Adverse Effects

In common with other beta-agonists containing products, side effects of Windel® Plus can include fine tremor of skeletal muscles and nervousness and less frequently tachycardia, dizziness, palpitations or headache, especially in hypersensitive patients.
Potentially serious hypokalaemia may result from prolonged and / or high dose beta$_2$-agonist therapy.

As with use of other inhalation therapy, cough, local irritation and less commonly inhalation induced bronchospasm can occur.

As with other beta-mimetics, nausea, vomiting, sweating, weakness and myalgia/muscle cramps may occur. In rare cases decrease in diastolic blood pressure, increase in systolic blood pressure, arrhythmias, particularly after higher doses, may occur.

In individual cases psychological alterations have been reported under inhalation therapy with beta-mimetics.

The most frequent non-respiratory anticholinergic related adverse events are dryness of mouth and dysphonia. There have been isolated reports of ocular complications (i.e. mydriasis, increased intraocular pressure, angle-closure glaucoma, and eye pain) when aerosolised ipratropium bromide either alone or in combination with adrenergic beta$_2$-agonist, has escaped into the eyes. Ocular side effects, gastrointestinal motility disturbances and urinary retention may occur in rare cases and are reversible.

Drug Interactions

The concurrent administration of other beta-mimetics, systemically absorbed anticholinergics and xanthine derivatives may increase the side effects.
Beta-agonist induced hypokalaemia may be increased by concomitant treatment with xanthine derivatives, glucocorticosteroids and diuretics. This should be taken into account particularly in patients with severe airway obstruction.
Hypokalaemia may result in an increased susceptibility to arrhythmias in patients receiving digoxin. It is recommended that serum potassium levels be monitored in such situations.

A potentially serious reduction in bronchodilator effect may occur during concurrent administration of beta-blockers.

Beta-adrenergic agonists should be administered with caution to patients being treated with monoamine oxidase inhibitors or tricyclic antidepressants, since the action of beta-adrenergic agonists may be enhanced.

Inhalation of halogenated hydrocarbon anaesthetics such as halothane, trichloroethylene and enflurane may increase the susceptibility to the cardiovascular effects of beta-agonists.

Overdosage

The effects of overdosage are expected to be primarily related to Salbutamol because acute overdosage with Ipratropium Bromide is unlikely as it is not well absorbed systemically after inhalation or oral administration.

Symptoms

Manifestations of overdosage with salbutamol may include tachycardia, anginal pain, hypertension, hypotension , palpitations, tremor, widening of the pulse pressure, arrhythmia and flushing.

Therapy

Administration of sedatives, tranquillisers; in severe cases, intensive therapy.
Beta-receptor blockers, preferably beta$_1$-selective, are suitable as specific antidotes; however, a possible increase in bronchial obstruction must be taken into account and the dose should be adjusted carefully in patients suffering from bronchial asthma.

Storage

Do not store above 30 °C. Keep away from light and out of the reach of children.

Commercial Pack

Windel ® Plus: Each box contains 15 LDPE ampoules in blister packs.

Manufactured by
Incepta Pharmaceuticals Ltd
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