ciclesonide (inhalation) (si-kless-o-nide)

Classification
Therapeutic: antiasthmatics
Pharmacologic: corticosteroids (inhalation)

Pregnancy Category C

Indications
Maintenance treatment of asthma as preventive therapy in patients ≥ 12 yr. Not for acute treatment of bronchospasm.

Action
Potent, locally acting anti-inflammatory and immune modifier. Therapeutic Effects: decreased frequency and severity of asthma attacks; improved asthma symptoms.

Pharmacokinetics
Absorption: Negligible oral bioavailability, action is primarily local.
Distribution: Unknown.
Metabolism and Excretion: Converted by esterases to des-ciclesonide, the active drug, which is subsequently metabolized by the liver. Some further metabolites may be pharmacologically active. Mostly eliminated in feces via biliary excretion; 20% of des-ciclesonide is excreted in urine.

Half-life: Ciclesonide—0.7 hr; Des-ciclesonide—6–7 hr.

TIME/ACTION PROFILE (improvement in symptoms)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>Inhaln</td>
<td>within 24 hr</td>
<td>1–4 wk†</td>
<td>unknown</td>
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</table>

† Improvement in pulmonary function, airway responsiveness may take longer.

Contraindications/Precautions
Contraindicated in: Hypersensitivity to ciclesonide or any other ingredients in the formulation; lactate dehydrogenase or glutamic oxaloacetic transaminase increases above normal range; concurrent use of oral and inhaled corticosteroids; local infection at administration site; acute exacerbation of asthma; children < 12 yr; pregnancy (category C); lactation; children ≥ 12 yr with asthma and a history of glaucoma, cataracts, intraocular hypertension.

Use Cautiously in: Geri: Consider age-related changes in cardiac, renal and hepatic function, concurrent disease state and drug therapy; consider lower initial dose; OB: May be sufficient; Lactation: Many corticosteroids enter breast milk, hypercorticism may be seen with ≥ maternal doses; Pedi: Safety and effectiveness in children < 12 yr has not been established.

Adverse Reactions/Side Effects
CNS: headache.
EENT: candida infection of mouth and pharynx, nasal congestion, sinusitis, pharyngolaryngeal pain, conjunctivitis, rhinitis.
Endo: hypercorticism (growth, menstrual irregularities, hirsutism, acne, impotence, hypothyroidism), adrenal suppression (anorexia, nausea, weakness, fatigue, hypotension, hypoglycemia, growth retardation) (children).
MS: arthralgia, back pain, bone mineral density (dose-related changes), extremity pain.
Misc: worsening of infections.

Interactions
Drug-Drug: None noted.

Route/Dosage
Inhaln (Adults ≥ 12 yr): Previous therapy with bronchodilators alone—80 mcg twice daily, may be or 160 mcg twice daily; Previous therapy with inhaled corticosteroids—80 mcg twice daily, may be 160 mcg twice daily; Previous therapy with oral corticosteroids—320 mcg twice daily.

NURSING IMPLICATIONS

Assessment
● Monitor respiratory status and lung sounds. Pulmonary function tests may be assessed periodically during and for several months following a transfer from systemic to inhalation corticosteroids.
● Assess patients changing from systemic corticosteroids to inhalation corticosteroids for signs of adrenal insufficiency (anorexia, nausea, weakness, fatigue, hypotension, hypothyroidism, during initial therapy and periods of stress. If these signs appear, notify health care professional immediately; condition may be life-threatening.
● Monitor for withdrawal symptoms (fatigue, weakness, nausea, vomiting, hypotension, joint or muscular pain, bone pain, depression) during withdrawal from oral corticosteroids.
● Monitor growth rates in children receiving chronic therapy; lowest possible dose should be used.
● Monitor patients with a change in vision or with a history of intraocular pressure, glaucoma, or cataracts closely.
● Lab Test Considerations: Provide adrenal function tests may be ordered to assess degree of hypothalamic-pituitary-adrenal (HPA) axis suppression in children receiving systemic corticosteroids.

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Chronic Therapy: Children and patients using higher than recommended doses are at highest risk for HPA suppression.

Potential Nursing Diagnoses
- Ineffective airway clearance (Indications)
- Risk for infection (Side Effects)

Implementation
- When changing from oral to inhaled corticosteroids, taper oral dose slowly, no faster than prednisone 2.5 mg/day on a weekly basis, beginning after at least 1 wk of ciclesonide inhalation therapy.
- After the desired clinical effect has been obtained, attempts should be made to reduce dose to lowest amount required to control symptoms. Gradually, as long as desired effect is maintained. If symptoms return, dose may briefly return to starting dose.

Inhaln:
- Allow at least 1 min between inhalations. Do not shake inhaler or use with spacer.
- If bronchospasm occurs right after ciclesonide dose, discontinue and administer short acting bronchodilator; notify health care professional.

Patient/Family Teaching
- Instruct patient to use inhaler at regular intervals as directed. If a dose is missed, omit and take next regularly scheduled dose. Do not take 2 doses at once. Gradually, as long as desired effect is maintained. If symptoms return, dose may briefly return to starting dose.
- Advise patient to rinse mouth with water after inhalation to reduce risk of developing local candidiasis.
- Caution patient to avoid smoking, known allergens, and other respiratory irritants.
- Advise patient to avoid tobacco and other respiratory irritants.
- Advise patient to use regular peak flow monitors to determine respiratory status.
- Advise patient to wash hands before taking other BID, OTC, or herbal products.
- Advise patients to notify health care professional if pregnancy is planned or suspected or if breast feeding.
- Advise female patients to notify health care professional if pregnancy is planned or suspected or if breast feeding.
- Advise patient to notify health care professional if symptoms worsen or if signs of adrenal insufficiency occur.
- Advise patient to notify health care professional if asthma worsens or if signs of adrenal insufficiency occur.
- Advise patient to use regular peak flow monitors to determine respiratory status.
- Advise patient to rinse mouth with water after treatment to reduce risk of developing local candidiasis.

Evaluation/Desired Outcomes
- Management of the symptoms of chronic asthma.
- Improvement in asthma symptoms. Maximum benefit may take 4 wks or longer.