Fluticasone (floo-ti-ka-sone)
Flovent HFA, Flovent Diskus

Classification
Therapeutic: anti-inflammatories (steroidal)
Pharmacologic: corticosteroids

Pregnancy Category C

Indications
Maintenance and prophylactic treatment of asthma. May decrease requirement for or avoid use of systemic corticosteroids and delay pulmonary damage that occurs from chronic asthma.

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

Pharmacokinetics
Absorption: 1% (aerosol), 8% (powder). Action is primarily local after inhalation.

Distribution: 10–25% of inhaled corticosteroids is deposited in the airways if a spacer device is not used. With the use of a spacer, a greater percentage may reach the respiratory tract. Crosses the placenta and enters breast milk in small amounts.

Protein Binding: 91%.

Metabolism and Excretion: Metabolized by the liver (primarily by CYP3A4) after absorption from lungs; 5% excreted in urine; remainder excreted in feces. Half-life: 7.8 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>Inhalation</td>
<td>within 24 hr</td>
<td>1–4 wk†</td>
<td>several days after DC</td>
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†Improvement in pulmonary function; decreased airway responsiveness may take longer.

Contraindications/Precautions
Contraindicated in: Hypersensitivity (contains propellants); Acute attack of asthma/status asthmaticus.

Use Cautiously in: Active untreated infections; Diabetes or glaucoma; Underlying immunosuppression (due to disease or concurrent therapy); Asthmatics on chronic systemic corticosteroid therapy (should not be abruptly discontinued when inhalable therapy is started; additional corticosteroids needed in stress or trauma); Hepatic dysfunction; Severe milks protein allergy. (powder for oral inhalation contains lactose). GIf, Lactation: Pregnancy, lactation, or children <6 yr (safety not established; prolonged or high dose therapy may lead to complications).

Adverse Reactions/Side Effects
CNS: headache, dizziness.
EENT: dysphonia, hoarseness, oropharyngeal fungal infections, nasal stuffiness, rhinorrhea, sinusitis.
Resp: bronchospasm, cough, upper respiratory tract infection, wheezing.
GI: nausea, vomiting, stomach pain.
Endo: adrenal suppression (high-dose, long-term therapy only), hypokalemia, hypophosphatemia, hypocalcemia, hypomagnesemia, hyperglycemia, Cushing’s syndrome.
MS: muscle pain.
Misc: hypersensitivity reactions including anaphylaxis, urticaria, angioedema, bronchospasm, Cushing’s syndrome.

Interactions
Drug-Drug: Strong CYP3A4 inhibitors, including ritonavir, clarithromycin, indinavir, nelfinavir, saquinavir, and telithromycin; concurrent use not recommended.

Route/Dosage
Aerosol for oral inhalation

Inhaln (Adults and Children ≥12 yr): Patients whose previous asthma therapy included bronchodilators alone—88 mcg twice daily initially, may be up to 440 mcg twice daily.

Inhaln (Children 4–11 yr): 88 mcg twice daily (not to exceed 88 mcg twice daily).

Powder for oral inhalation

Inhaln (Adults and Children ≥12 yr): Patients whose previous asthma therapy included bronchodilators alone—100 mcg twice daily initially, may be up to 200 mcg twice daily.

Inhaln (Children 4–11 yr): 100 mcg twice daily (not to exceed 200 mcg twice daily).

Inhaln (Children 2–5 yr): 50 mcg twice daily.
mcg twice daily. Patients whose previous therapy included other inhaled corticosteroids—100–250 mcg twice daily initially, may be up to 500 mcg twice daily; Patients whose previous therapy included oral corticosteroids—500–1000 mcg twice daily.

Inhaln (Children 6–11 yr): Patients whose previous asthma therapy included bronchodilators alone—50 mcg twice daily initially, may be up to 100 mcg twice daily; Patients whose previous therapy included other inhaled corticosteroids—50 mcg twice daily initially, may be up to 100 mcg twice daily.

NURSING IMPLICATIONS

Assessment

- Monitor respiratory status and lung sounds. Assess pulmonary function tests periodically during and for several months after 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, hypertension, hypoglycemia) during initial therapy and periods of stress. If these signs appear, consult health care professional immediately; condition may be life-threatening.
- Monitor for withdrawal symptoms (joint or muscular pain, lassitude, depression) during withdrawal from oral corticosteroids.
- Monitor growth rate in children receiving chronic therapy; use lowest possible dose.
- May cause decreased bone mineral density during prolonged therapy. Monitor patients with increased risk (prolonged immobilization, family history of osteoporosis, post-menopausal status, tobacco use, advanced age, poor nutrition, chronic use of drugs that can reduce bone mass [anticonvulsants, oral corticosteroids]) for fractures.
- Monitor for signs and symptoms of hypersensitivity reactions (rash, pruritus, swelling of face and neck, dyspnea) periodically during therapy.

Lab Test Considerations: Periodic adrenal function tests may be ordered to assess degree of hypothalamic-pituitary-adrenal (HPA) axis suppression in 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

- Do not confuse Flovent with Flonase (fluticasone nasal spray).
- After the desired clinical effect has been achieved, attempts should be made to decrease dose to lowest amount required to control symptoms. Gradually decrease dose every 2–4 wk 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 of aerosol medication.

Patient/Family Teaching

- Advise patient to take medication as directed. If a dose is missed, take as soon as remembered except within 1–2 h before next dose. Instruct patient to read the Patient Information and Instructions for Use before using and with each Rx refill, in case of new information. Advise patient not to discontinue medication without consulting health care professional; gradual decrease is required.
- Advise patients using inhalation corticosteroids and bronchodilator to use bronchodilator first and to allow 5 min to elapse before administering the corticosteroid, unless otherwise directed by health care professional.
- Advise patients that inhalation corticosteroids should not be used to treat an acute asthma attack but should be continued even if other inhalation agents are used.
- Patients using inhalation corticosteroids to control asthma may require systemic corticosteroids for an acute attack. Advise patient to use regular peak flow monitors to determine respiratory status.
- Advise patient to stop using medication and notify health care professional immediately if signs and symptoms of hypersensitivity reactions occur.
- Caution patients to avoid smoking, known allergens, and other respiratory irritants.
- Advise patients to notify health care professional if pregnancy is planned or suspected or if breast feeding.

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CONTINUED
Instruct patient whose systemic corticosteroids have been recently reduced or withdrawn to carry a warning card indicating the need for supplemental systemic corticosteroids in the event of stress or severe asthma attack unresponsive to bronchodilators.

For Inhalation: Instruct patient in the proper use of the metered-dose inhaler. Inhaler should be primed before using for the first time by releasing 4 sprays into air, away from face. When inhaler has not been used for more than 7 days, reprime unit by releasing 1 spray into air, away from face. Shake inhaler well. Exhale completely and then close lips firmly around mouthpiece. While breathing in deeply and slowly, press down on canister. Hold breath for as long as possible to ensure deep instillation of medication. Remove inhaler from mouth and breathe out gently. Allow 1–2 min between inhalations. Rinse mouth with water or mouthwash after each use to minimize fungal infections, dry mouth and hoarseness. Wash inhalation assembly at least once weekly in warm running water.

For Inhalation: Do not use with a spacer. Exhale completely and then close lips firmly around mouthpiece. While breathing in deeply and slowly, press down on canister. Hold breath for as long as possible to ensure deep instillation of medication. Remove inhaler from mouth and breathe out gently. Allow 1–2 min between inhalations. Rinse mouth with water and spit out. Never wash the mouthpiece or any part of the Diskus inhaler. Discard Diskus inhaler device 6 wks (50-mcg strength) or 2 mo (100-mcg and 250-mcg strengths) after removal from protective foil overwrap pouch or after all blisters have been used (whichever comes first).

Evaluation/Desired Outcomes

Management of the symptoms of chronic asthma.

Why was this drug prescribed for your patient?