Interferon beta-1b (in-ter-feer on-bay-ta won-bee)

Betaseron, Extavia

Classification
Therapeutic: anti-multiple sclerosis agents, immune modifiers
Pharmacologic: interferons

Pregnancy Category C

Indications
Relapsing forms of multiple sclerosis (MS). MS patients who have experienced a first clinical episode and have MRI features consistent with the disease.

Action
Antiviral and immunoregulatory properties produced by interacting with specific receptor sites on cell surfaces may explain beneficial effects. Produced by recombinant DNA technology.

Therapeutic Effects:
Reduce incidence of relapse and slowing of physical disability.

Pharmacokinetics
Absorption: 50% absorbed following subcutaneous administration.

Distribution: Unknown.

Metabolism and Excretion: Unknown.

Half-life: 8 min–4.3 hr.

TIME/ACTION PROFILE (serum concentrations)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>SC</td>
<td>rapid</td>
<td>1–8 hr</td>
<td>unknown</td>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity to natural or recombinant interferon beta or human albumin.

Use Cautiously in: Patients with a history of suicide attempt or depression; Patients with childbearing potential; Congestive HF (may worsen HF); OB, Lactation, Pedi: Safety not established.

Adverse Reactions/Side Effects
CNS: SUICIDAL THOUGHTS, depression, headache, incoordination, insomnia.

Resp: dyspnea.

CV: edema, chest pain, hypertension.

GI: abdominal pain, constipation, nausea, vomiting, autoimmune hepatitis, liver enzymes.

GU: urgency, erectile dysfunction.

Endo: menstrual disorders, hyperthyroidism, hypothyroidism, amenorrhea, amenorrhea, acne, acral erythema.

Derm: rash.

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Hemat: neutropenia, anemia, thrombocytopenia.

Local: injection-site reactions, injection site necrosis.

MS: myalgia, muscle spasm.

Misc: allergic reactions including ANAPHYLAXIS, chills, fever, flu-like symptoms, pain.

Interactions
Drug-Drug: Not known.

Route/Dosage
Subcut (Adults): Initiate with 0.0625 mg every other day and then dose by 0.0625 mg every 2 wk to target dose of 0.25 mg every other day.

NURSING IMPLICATIONS

Assessment
• Assess frequency of exacerbations of symptoms of multiple sclerosis periodically during therapy.
• Monitor patient for signs of depression and suicidal tendencies during therapy. If depression occurs, notify health care professional immediately. Therapy may be discontinued.

Lab Test Considerations: Monitor hematologic, WBC, platelet, and blood chemistries including liver function test prior to and 1, 3, and 6 mo after initiation of therapy and periodically thereafter. Therapy may be temporarily discontinued if the absolute neutrophil count is <750/mm^3, if AST or ALT exceeds 10 times the upper limit of normal, or if serum bilirubin exceeds 5 times the upper limit of normal. Once the absolute neutrophil count is >750/mm^3 or the hepatic enzymes have returned to normal, therapy may be resumed at 50% of the original dose. Thyroid function tests should also be monitored every 6 mo, especially in those patients with a history of thyroid abnormalities.

Potential Nursing Diagnoses
Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation
• Do not confuse products. Interferon beta-1a and interferon beta-1b are not interchangeable.
• Subcut: Inject 1.2 mL of diluent supplied into interferon beta-1b vial for a concentration of 0.25 mg/mL. Swirl gently to dissolve completely; do not shake or mix vigorously.

References


shake. If foaming occurs, allow to sit undisturbed until foam dissipates. Do not use solutions that are discolored or contain particulate matter. Keep reconstituted solution refrigerated; inject within 3 hr of reconstitution.

- Following reconstitution, withdraw 1 mL into a syringe with a 27-gauge (Extavia) or 30-gauge (Betaseron) needle, pinch skin, and inject subcut at a 90° angle into arm, abdomen, hip, or thigh. Rotate sites with each injection to minimize risk of injection site reactions. Discard unused portion; vials are for single dose only.

**Patient/Family Teaching**

- **Home Care Issues:** Instruct patient in correct technique for injection and care and disposal of equipment. Caution patient not to reuse needles or syringes and provide patient with a puncture-resistant container for disposal.

- Instruct patient to take medication as directed; do not change dose or schedule without consulting health care professional. Patients should receive a medication guide with each product.

- Advise patient, family, and caregivers to look for suicidality. Notify health care professional immediately if thoughts about suicide or dying, attempts to commit suicide, new or worse depression or anxiety, agitation or restlessness, panic attacks, insomnia, new or worse irritability, aggression, acting on dangerous impulses, mania, or other changes in mood or behavior occur.

- Instruct patients with pre-existing HF to notify health care professional if signs and symptoms of worsening HF (swollen ankles, shortness of breath, decreased ability to exercise, fast heartbeat, tightness in chest, increased need to urinate at night, not being able to lay flat in bed) immediately.

- Instruct patient that flu-like symptoms (fever, chills, myalgia, sweating, malaise) may occur during therapy. Acetaminophen may be used for relief of fever and myalgias.

- Advise patient to notify health care professional if injection site reactions or necrosis (area is swollen and painful, looks infected, does not heal within a few days, has fluid draining from it, or breaks in your skin or blue-black skin discoloration) occur.

- Advise patient to notify health care professional if pregnancy is planned or suspected. May cause spontaneous abortion.

**Evaluation/Desired Outcomes**

- Decrease in the frequency of relapse (neurologic dysfunction) in patients with relapsing-remitting multiple sclerosis.
- Slowed progression of disability in early-stage MS.

Why was this drug prescribed for your patient?