vinBLAStine (vin-blas-teen)

Classification
Therapeutic: antineoplastics
Pharmacologic: vinca alkaloids

Pregnancy Category D

Indications
Combination chemotherapy of lymphomas, non-Hodgkin’s lymphoma, smallcell lung cancer, other tumors.

Action
Binds to proteins of mitotic spindle, causing metaphase arrest. Cell replication is stopped as a result (cell cycle-specific for M phase).

Therapeutic Effects:
Death of rapidly replicating cells, particularly malignant ones. Has immunosuppressive properties.

Pharmacokinetics
Absorption: Administered IV only, resulting in complete bioavailability.
Distribution: Does not cross the blood-brain barrier well.
Metabolism and Excretion: Converted by the liver to an active antineoplastic compound; excreted in the feces via biliary excretion, some renal elimination.
Half-life: 24 hr.

TIME/ACTION PROFILE (effects on white blood cell counts)

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<td>IV</td>
<td>5–7 days</td>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity; OB, Lactation: Pregnancy or lactation.
Use Cautiously in: Infection; PCI; Hepatic function impairment (dose by 50% if serum bilirubin > 3 mg/dL); OB: Instruct women of childbearing potential to avoid pregnancy during treatment.

Adverse Reactions/Side Effects
CNS: Somnolence, mental depression, neuritis, paresthesia, peripheral neuropathy.
CV: Hyperuricemia.
GI: Nausea, vomiting, anorexia, constipation, diarrhea, stomatitis.
GU: Proteinuria.
Skin: Alopecia, dermatitis, vesiculation.
Endo: Syndrome of inappropriate antidiuretic hormone (SIADH).
Hemat: Anemia, leukopenia, thrombocytopenia.
Local: Phlebitis at IV site.
Metab: Elevation of SGOT, SGPT.
Resp: Bronchospasm.
Other: Pseudopodia, peripheral neuropathy.

Interactions
Drug-Drug: Additive bone marrow depression with other antineoplastics or radiation therapy. Bronchospasm may occur in patients who have been previously treated with mitomycin. May interact with live-virus vaccines and /risk of adverse reactions. May /phenytoin levels.

Route/Dosage
Doses may vary greatly, depending on tumor, schedule, condition of patient, and blood counts.

IV (Adults): Initial—3.7 mg/m2 (100 mcg/kg), single dose; q weekly as tolerated by 1.8 mg/m2 (50 mcg/kg) to maximum of 18.5 mg/m2 (usual dose is 5.5–7.4 mg/m2). Maintenance—10 mg 1–2 times/mo or one increment less than last dose q 7–14 days.

IV (Children): Initial—2.5 mg/m2, single dose; q weekly as tolerated by 1.25 mg/m2 to maximum of 7.5 mg/m2. Maintenance—one increment less than last dose q 7 days.

NURSING IMPLICATIONS
Assessment
Monitor BP, pulse, and respiratory rate during therapy. Notify physician immediately if respiratory distress occurs. Bronchospasm can be life-threatening and may occur at time of infusion or several hours to weeks later.

Monitor for bone marrow depression. Lesions for bleeding (petechiae, bruising, purpura, gingival bleed, nose, and mouth) and avoid OKIs infusions and taking oral temperatures if platelet count is low. Apply pressure to venipuncture sites for 10 min. Assess for signs of infection during neutropenia. Infection may occur. Monitor for increased tongue, dysphagia, and subcutaneous hypoproteinemia.

Monitor for nausea and vomiting. Monitor oral and output, appetite, and mental status. Prophylactic antiemetics may be used. Adjust dosage as tolerated.

Assess injection site frequently for redness, irritation, or inflammation. If extravasation occurs, infusion must be stopped and continued elsewhere to avoid damage to tissue.
to subcut tissue. Standard treatment includes infiltration with hyaluronidase and application of heat.

- Monitor for symptoms of gout (increased uric acid, joint pain, edema). Encourage patient to drink at least 2 L of fluid per day. Allopurinol or alkalinization of urine may be used to decrease uric acid levels.

- Lab Test Considerations:
  - Monitor CBC prior to and routinely throughout therapy. If WBC < 2000, subsequent doses are usually withheld until WBC is > 4000. The nadir of leukopenia occurs in 5–10 days and recovery usually occurs 7–14 days later. Thrombocytopenia also occurs in patients who have received radiation or other chemotherapy agents.
  - Monitor liver function studies (AST, ALT, LDH, bilirubin) and renal function studies (BUN, creatinine) prior to and periodically throughout therapy.
  - May cause uric acid. Monitor periodically during therapy.

Potential Nursing Diagnoses
Risk for infection (Adverse Reactions)
Imbalanced nutrition: less than body requirements (Adverse Reactions)

Implementation
- High Alert: Fatality has occurred with chemotherapy agents. Before administration, verify all ambiguous orders; double check single, daily, and course-of-therapy dose limits; have second practitioner independently double check original order, dose calculations, and infusion pump settings. Do not administer subcut, IM, or intrathecally (IT). IT administration is fatal. Vinblastine must be dispensed in an overwrap stating, “For IV use only.” Overwrap should remain in place until immediately before administration.

- High Alert: Do not confuse vinblastine with vincristine.

- Solution should be prepared in a biologic cabinet. Wear gloves, gown, and mask while handling medication. Discard IV equipment in specially designated containers.

- Do not inject into extravascular sites; increased chance of vein irritation and extravasation.

IV Administration
- pH: 3.0–5.0
- Direct IV: Solution reconstituted with 10 mL of 0.9% NaCl for injection with phenol or benzyl alcohol. Solution is clear. Reconstituted medication is stable for 28 days if refrigerated. Concentration: 1 mg/mL. Rate: Administer each single dose over 1 min through Y-site injection of a free-flowing infusion of 0.9% NaCl or D5W.

- Intermediate Infusion: Dilute in large volumes (100–250 mL) or prolonged infusion (> 30 min) to decrease chance of vein irritation and extravasation.

- Storage Compatibility: Bleomycin, cisplatin, cyclophosphamide, doxorubicin, etoposide phosphate, leucovorin calcium, methotrexate, mitomycin, vincristine.

- Storage Incompatibility: Furosemide.

- Y-Site Compatibility: Allopurinol, amifostine, amphotericin B, amphotericin B cholesteryl sulfate complex, amoxicillin, bleomycin, cisplatin, cyclophosphamide, doxorubicin, doxorubicin liposome, etoposide phosphate, leucovorin calcium, methotrexate, mitomycin, vincristine, zoledronic acid, vancomycin, piperaclil, piperacillin/tazobactam, suramin, temsirolimus, teniposide, vinorelbine, vincristine, zoledronic acid.

- Y-Site Incompatibility: Cefepime, furosemide, lansoprazole.

Patient/Family Teaching
- Advise patient to report all health care professional if fever, chills, sore throat, signs of infection (bloody gums, bruising, pink tongue, or unusual skin color). Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor. Caution patient to avoid contact with orally or nasally administered medications. Instruct patient to avoid alcohol.

- Advise patient to inject only into intact skin; do not use insertion sites for injections or infusions. Do not use sites for injections if they are not optimal: painful, inflamed, or infected. Use another site if pain continues.

- Advise patient to report symptoms of neurotoxicity (paresthesia, pain, difficulty walking, persistent constipation).

- Advise patient that low pain, pain in organs containing tumor tissue, nausea, and vomiting may occur; avoid constipation and report other adverse reactions.

- Advise patient that this medication may have teratogenic effects. Contraception should be used during and for at least 2 mo after therapy is concluded.

- Discuss with patient the possibility of hair loss. Explore coping strategies.
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- Instruct patient not to receive any vaccinations without advice of health care professional.
- Emphasize need for periodic lab tests to monitor for side effects.

Evaluation/Desired Outcomes

- Regression of malignancy without the appearance of detrimental side effects.

Why was this drug prescribed for your patient?