High Alert

vinBLAStine (vin-**blass**-teen)

Velbe

Classification

Therapeutic: antineoplastics
Pharmacologic: vinca alkaloids
Pregnancy Category D

Indications

Combination chemotherapy of: Lymphomas, Nonseminomatous testicular carcinoma, Advanced breast 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)

ROUTE	ONSET	PEAK	DURATION
IV	5–7 days	10 days	7–14 days

Contraindications/Precautions

Contraindicated in: Hypersensitivity; ***OB, Lactation:*** Pregnancy or lactation.
Use Cautiously in: Infection; ↓ bone marrow reserve; Patients with impaired hepatic function (↓ 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: SEIZURES, mental depression, neurotoxicity, weakness. **Resp:** BRONCHOSPASM. **GI:** nausea, vomiting, anorexia, constipation, diarrhea, stomatitis. **GU:** gonadal suppression. **Derm:** alopecia, dermatitis, vesiculation. **Endo:** syndrome of inappropriate antidiuretic hormone (SIADH). **Hemat:** anemia, leukopenia, thrombocytopenia. **Local:** phlebitis at IV site. **Metab:** hyperuricemia. **Neuro:** neuritis, paresthesia, 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 ↓ antibody response to **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; ↑ 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; ↑ 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. Assess for bleeding (bleeding gums, bruising, petechiae, guaiac stools, urine, and emesis) and avoid IM injections and taking rectal temperatures if platelet count is low. Apply pressure to venipuncture sites for 10 min. Assess for signs of infection during neutropenia. Anemia may occur. Monitor for increased fatigue, dyspnea, and orthostatic hypotension.
- May cause nausea and vomiting. Monitor intake and output, appetite, and nutritional intake. Prophylactic antiemetics may be used. Adjust diet as tolerated.
- Assess injection site frequently for redness, irritation, or inflammation. If extravasation occurs, infusion must be stopped and restarted elsewhere to avoid damage

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 may also occur 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:*** Fatalities have occurred with chemotherapeutic agents. Before administering, clarify 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 extremities with impaired circulation; may cause thrombophlebitis.

IV Administration

- **pH:** 3.0–5.0.
- **Direct IV:** ***Diluent:*** Dilute each 10 mg 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.
- **Intermittent Infusion:** Dilution in large volumes (100–250 mL) or prolonged infusion (≥30 min) increases chance of vein irritation and extravasation.
- **Syringe Compatibility:** bleomycin, cisplatin, cyclophosphamide, droperidol, fluorouracil, leucovorin calcium, methotrexate, metoclopramide, mitomycin, vincristine.
- **Syringe Incompatibility:** furosemide.
- **Y-Site Compatibility:** allopurinol, amifostine, amphotericin B cholesteryl sulfate complex, aztreonam, bleomycin, cisplatin, cyclophosphamide, doxorubicin, doxorubicin liposome, droperidol, etoposide phosphate, filgrastim, fludarabine, fluorouracil, gemcitabine, granisetron, heparin, leucovorin calcium, melphalan, methotrexate, metoclopramide, mitomycin, ondansetron, paclitaxel, pemetrexed, piperacillin/tazobactam, sargramostim, teniposide, thiotepa, vincristine, vinorelbine.
- **Y-Site Incompatibility:** cefepime, furosemide, lansoprazole.

Patient/Family Teaching

- Advise patient to notify health care professional if fever; chills; sore throat; signs of infection; bleeding gums; bruising; petechiae; or blood in urine, stool, or emesis occurs. Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor. Caution patient not to drink alcoholic beverages or take products containing aspirin or NSAIDs.
- Instruct patient to inspect oral mucosa for redness and ulceration. Advise patient that, if ulceration occurs, to avoid spicy foods, use sponge brush, and rinse mouth with water after eating and drinking. Topical agents may be used if mouth pain interferes with eating. Stomatitis pain may require treatment with opioid analgesics.
- Instruct patient to report symptoms of neurotoxicity (paresthesia, pain, difficulty walking, persistent constipation).
- Advise patient that jaw 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?