



## Vincristine (Oncovin, Vincasar)

### Drug type

- Vinca alkaloid

### Indications

- Hodgkin disease; Kaposi sarcoma; leukemia; neuroblastoma; non-Hodgkin lymphoma; rhabdomyosarcoma; Wilms tumor

### In combination with other agents, may also be used to treat

- Autoimmune hemolytic anemia; brain medulloblastoma; Burkitt lymphoma; Ewing sarcoma; idiopathic thrombocytopenic purpura; multiple myeloma; osteogenic sarcoma; small cell lung cancer; and some types of sarcoma

### Mechanism of action

- Vincristine inhibits microtubule formation and DNA/RNA synthesis. It arrests the cell in metaphase by disrupting the formation of the mitotic spindle, hence it is a spindle poison.

### Dosage and administration

- Administered intravenously at weekly intervals, frequency can vary based on protocol
- Usual dose for pediatric patients: 1.5–2 mg/m<sup>2</sup>/dose  
— ≤10 kg: Starting dose should be 0.05 mg/kg/dose, administered once a week
- Usual dose for adult patients: 1.4 mg/m<sup>2</sup>  
— Dose may be capped at a maximum of 2 mg/dose in certain protocols  
— 50% reduction in dose is recommended for patients with a direct serum bilirubin value >3 mg/dL

### Pregnancy and lactation

- Pregnancy category D
- Lactation  
— Unknown whether distributed in breast milk  
— Breastfeeding not recommended during therapy

### Cautions

- NB: Intrathecal administration will result in death.
- Vesicant
- Bone marrow depression, neuropathy, neuromuscular disease, neurotoxic agents, ototoxic agents, pulmonary disease, hepatic impairment, avoid extravasation
- Withhold if neurotoxicity develops (usually reversible)
- Potential for jaw/parotid pain, hoarseness, dysphagia due to cranial neuropathy
- Avoid pregnancy
- Risk of paralytic ileus

### Adverse effects

- Alopecia (20%–70% of patients)
- Other effects (frequencies are not defined)  
— Acute uric acid nephropathy; amenorrhea; aspermia; constipation; gait changes; hypertension; hypotension; jaw pain; leukopenia; loss of deep tendon reflexes; myelosuppression; nausea; paralytic ileus; paresthesia; peripheral neuropathy; sensory loss; vomiting

### Drug interactions

- Vincristine is a substrate of CYP3A4
- Exercise caution with patients concurrently taking drugs known to inhibit drug metabolism by hepatic cytochrome P450 isoenzymes in the CYP3A subfamily or in patients with hepatic dysfunction.  
— Concurrent administration with itraconazole (Onmel, Sporanox, generic) has been reported to cause an earlier onset and an increased severity of neuromuscular side effects.

Continued on page 28

- CYP3A4 inducers (echinacea, St John's Wort) may decrease the levels of vincristine
- Simultaneous administration of phenytoin and antineoplastic chemotherapy combinations that included vincristine sulfate lowered blood levels of the anticonvulsant and increased seizure activity.

### What to tell your patient

- Your doctor has ordered the anticancer medicine, vincristine, to help treat your illness.
- Vincristine is given on a schedule, usually weekly, or as directed by your doctor.
- Vincristine is given only by injection into a vein.
  - This drug may leak into surrounding tissue. Your nurse or doctor will monitor the administration site for this reaction.
- Vincristine slows or stops the growth of cancer cells in your body. The duration of treatment depends on the types of drugs you are taking, how well your body responds to them, and the type of cancer you have.
- Tell your nurse or doctor:
  - If you are allergic to vincristine or any other drugs
  - All the prescription and nonprescription medications you are taking, especially aspirin, itraconazole, and vitamin supplements
  - If you have or have ever had heart, liver, nerve, or muscle disease
  - If you are currently receiving radiation therapy
  - If you are pregnant or breastfeeding
  - You are undergoing vincristine therapy before you receive any vaccinations (eg, measles or flu shots)
- Vincristine may interfere with the normal menstrual cycle in women and may stop sperm production in men.
- You should not attempt to become pregnant while receiving vincristine because it may harm the fetus.
  - Use a reliable birth control method during therapy and for a period of time after treatments are completed.

### Side effects

- Remember, your doctor has prescribed this medication because he or she has judged that the benefit to you is greater than the risk of side effects.
- Most people do not experience all side effects.
- Side effects are temporary and usually go away after treatment is completed.
- Many options are available to help minimize or prevent side effects.
- The occurrence or severity of side effects and the effectiveness of vincristine are not related.

- Common side effects (20%–70% of patients)
  - Partial or complete hair loss
- Less common side effects (10%–29% of patients)
  - Abdominal cramps
  - Changes in sense of taste
  - Constipation
  - Diarrhea
  - Loss of appetite
  - Low blood counts.
    - White blood cell count (WBC), red blood cell count (RBC), and platelets may temporarily decrease. This can put you at increased risk for infection, anemia, and bleeding.
  - Mouth sores
  - Nausea and vomiting
  - Peripheral neuropathy
    - Although uncommon, sensory loss and numbness and tingling in the hands and feet may occur. These side effects as well as difficulty walking may last for at least as long as treatments are continued. They may become progressively more severe during therapy, and your doctor may decide to lower your dose.
  - Weight loss
- Not all side effects are listed. Some rare side effects (occur in <10% of patients) are not listed here.
  - Always inform your nurse or doctor if you experience any unusual symptoms.
- Tell your nurse or doctor immediately, day or night, if you should experience
  - Fever of 100.4°F (38°C) and chills (possible signs of infection)
  - Inability to urinate
- The following symptoms require medical attention, but are not emergency situations. Tell your nurse or doctor within 24 hours of noticing
  - Black or tarry stools, or blood in your stools or urine
  - Bone pain
  - Constipation
  - Diarrhea (4–6 episodes in a 24-hour period)
  - Lip or mouth sores
  - Nausea (interferes with ability to eat and unrelieved with prescribed medications)
  - Painful urination
  - Severe abdominal pain
  - Unusual bleeding or bruising
  - Vomiting (more than 4–5 times in a 24-hour period) ■

Prepared by **Bette Weinstein Kaplan**. Reviewed by **Maribel Pereiras, PharmD, BCPS, BCOP**.