azaCITIDine (a-za-sye-tid-ee-n)  

**Classification**  
Therapeutic: antineoplastics  
Pharmacologic: nucleoside analogues

**Pregnancy Category D**

**Indications**
Myelodysplastic syndromes including: some refractory anemias, chronic myelomonocytic leukemia.

**Action**
Inhibits DNA synthesis. Therapeutic Effects: Death of rapidly replicating cells, particularly malignant ones.

**Pharmacokinetics**
**Absorption:** Rapidly absorbed following subcutaneous administration; 89% bioavailable.

**Distribution:** Unknown.

**Metabolism and Excretion:** 85% excreted in urine; some hepatic metabolism may occur. Less than 1% fecal elimination.

**Half-life:** 4 hr.

**TIME/ACTION PROFILE (effects on bone marrow)**

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<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<td>Subcut</td>
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**Contraindications/Precautions**
Contraindicated in: Hypersensitivity; Advanced malignant hepatic tumors; OB: Potential for congenital anomalies; Lactation: Potential for serious side effects in infants. Use Cautiously in: Renal impairment; Liver disease; OB: Patients with child-bearing potential (male and female) due to potential fetal harm; Pedi: Safety not established.

- **C** = Generic drug name
- **H** = Genetic Implication
- **OPT** = indicate life-threatening; underline indicate most frequent
- **Strikethrough** = Discontinued

**Adverse Reactions/Side Effects**

**CNS:** Fatigue.  
**GI:** Hepatotoxicity, constipation, diarrhea, nausea, vomiting.  
**GU:** Nephrotoxicity, renal tubular acidosis.  
**Derm:** Acute febrile neutrophilic dermatosis, ecchymosis.  
**F and E:** Hypokalemia.  
**Hemat:** Anemia, neutropenia, thrombocytopenia.  

**Interactions**

**Drug-Drug:** Additive bone marrow depression may occur with other antineoplastics.

**Route/Dosage**

| Subcut, IV (Adults): | 75 mg/m2/day for 7 days every 4 wk; may be increased to 100 mg/m2/day for 7 days every 4 wk if no beneficial effect occurs after 2 cycles. Continue for as long as patient benefits. |

**NURSING IMPLICATIONS**

**Assessment**

- Monitor for bone marrow depression. Assess for bleeding (bleeding gums, bruising, ecchymosis, 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.
- Assess patient for nausea and vomiting during therapy. Premedicate patient before each dose.
- Monitor for signs of anaphylaxis (facial edema, wheezing, pruritus, urticaria, hypotension). Discontinue medication immediately and report symptoms. Epinephrine and resuscitation equipment should be readily available.
- Lab Test Considerations: Monitor CBC with differential and platelet count prior to each dosing cycle. If baseline ANC is more than 3 x 10^9/L, ANC is more than 3 x 10^9/L, and platelets are more than 75 x 10^9/L, dose is adjusted based on nadir counts for each cycle. If ANC is less than 3 x 10^9/L and platelets are less than 25 x 10^9/L then dose decrease to 25% in next course. If ANC is greater than 1.5 x 10^9/L and platelets are greater than 50, then 100% of dose can be given in subsequent cycle.
● Obtain liver chemistries and serum creatinine prior to initiation of therapy.

● Monitor renal function during therapy. If serum bicarbonate is < 20 mEq/L, reduce dose by 50% in next course. If unresolved, reduce dose by 50% in next course; delay next cycle until values return to normal or baseline and decrease dose by 50% in next course.

● May cause hypokalemia.

Potential Nursing Diagnoses

Risk for infection (Adverse Reactions)

Implementation

● Do not confuse azacitidine with azathioprine.

● Solution should be prepared in a biologic cabinet. Wear gloves, gown, and mask while handling medication. If powder or solution comes in contact with skin or mucosa, wash thoroughly with soap and water. Discard equipment in specially designated containers.

● Subcut: Reconstitute by adding 4 mL of sterile water for injection slowly into the azacitidine vial for a concentration of 25 mg/mL. Invert vial 2–3 times and rotate gently until suspension is uniform. Suspension will be cloudy. Stable for up to 1 hr at room temperature; must be administered within 1 hr of reconstitution. Suspension may also be refrigerated for up to 8 hr; may be allowed to equilibrate to room temperature for up to 30 min. Invert syringe 2–3 times and roll syringe gently between palms immediately prior to administration to mix suspension.

● Divide doses greater than 4 mL equally into 2 syringes and administer into separate sites. Rotate sites (thigh, abdomen, upper arm) with new injections at least one inch from old site. Do not use site that is bruised, tender, red, or hard.

IV Administration

● Intravenous infusion: Reconstitute each vial with 10 mL sterile water for injection slowly into the azacitidine vial for a concentration of 25 mg/mL. Invert vial 2–3 times and rotate gently until suspension is uniform. Solution should be clear; do not administer solutions that are not clear or contain particulate matter. Concentration: 10 mg/mL. Diluent: Withdraw solution from required number of vials and inject into 50–100 mL of 0.9% NaCl or LR. Solution is stable for 1 hr at room temperature. Rate: Infuse over 10–40 min. Infusion must be completed within 1 hr of reconstitution.

● Solution Incompatibility: D5W, dextan, solutions containing bicarbonate.

Patient/Family Teaching

● Instruct patient to notify health care professional if fever, chills, cough, headaches, sore throat, signs of infection, lower back or side pain, painful or difficult urination; bleeding gums; bruising; petechiae; blood in stools, urine, or emesis; increased fatigue, sleepiness, or orthostolic hypotension occurs. Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor and to avoid falls. Caution patient not to drink alcoholic beverages or take medication containing aspirin or NSAIDs, may precipitate gastric bleeding.

● May cause dizziness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.

● Advise patient to notify health care professional if they have underlying liver or renal disease.

● Advise both male and female patients of the need for contraception during therapy.

Evaluation/Desired Outcomes

● Improved bone marrow and blood counts.

Why was this drug prescribed for your patient?