decitabine (de-sit-a-ben)

**Classifications**

Therapeutic: antineoplastics

**Pregnancy Category:** D

**Indications**

Treatment of various myelodysplastic syndromes (MDS).

**Action**

Inhibits DNA methyltransferase, causing apoptosis. Has more effect on rapidly replicating cells.

**Therapeutic Effects:**

Improved hematologic and clinical manifestations of MDS.

**Pharmacokinetics**

**Absorption:** IV administration results in complete bioavailability.

**Distribution:** Unknown.

**Metabolism and Excretion:** Mostly metabolized by the liver.

**Half-life:** 0.5 hr.

**TIME/ACTION PROFILE (blood levels)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>IV</td>
<td>rapid</td>
<td>end of infusion</td>
<td>unknown</td>
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**Contraindications/Precautions**

**Contraindicated in:**
- Hypersensitivity
- OB, Lactation: Pregnancy or lactation.

**Use Cautiously in:**
- Patients with child-bearing potential (males and females);
- Impaired hepatic/renal function;
- Geri: May be more sensitive to effects;
- Pedi: Safety not established.

**Adverse Reactions/Side Effects**

**CNS:** confusion, fatigue, insomnia, depression, anxiety. **EENT:** blurred vision. **Respiratory:** cough. **CV:** atrial fibrillation, pulmonary edema, tachycardia. **GI:** abdominal pain, anorexia, nausea, vomiting, liver enzymes. **Derm:** petechiae, rash. **F and E:** edema, hypokalemia, hyperglycemia. **Hemat:** anemia, neutropenia, thrombocytopenia, bleeding. **Other:** fever, lymphadenopathy.

**Interactions**

**Drug-Drug:** May decrease myelosuppression with other antineoplastics, immunosuppressants, or radiation therapy. May reduce antibody response to and risk of adverse reactions from live virus vaccines.

**Route/Dosage**

**IV (Adults):** 15 mg/m² as a continuous infusion over 3 hr repeated q 8 hr for 3 days; cycle should be repeated q 6 wk for a minimum of 4 cycles or 20 mg/m² as a continuous infusion over 1 hr repeated daily for 5 days; cycle should be repeated q 4 wk for a minimum of 4 cycles.

**NURSING IMPLICATIONS**

**Assessment**

- Monitor for bone marrow depression. Assess for bleeding (bleeding gums, bruising, petechiae, guaiac stools, urine, and emesis) and avoid IV 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.

**Lab Test Considerations:**

- Monitor CBC prior to each dosing cycle and periodically as needed. May cause neutropenia, thrombocytopenia, and anemia; occur more frequently in 1st or 2nd treatment cycles. Use early institution of growth factors and antimicrobial agents to prevent infections.

- Obtain liver chemistries and serum creatinine prior to initiation of treatment. May cause hyperbilirubinemia and hypalbuminemia.

- May cause hyperglycemia, hyperuricemia, hyperkalemia, and hypokalemia.

**Potential Nursing Diagnoses**

- Risk for infection (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, calculations, and infusion pump settings.

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

- Pre-medicate patient with standard anti-emetic therapy.

- If hematologic recovery (ANC ≥ 1,000 cells/mm³ and platelets ≥ 50,000 cells/mm³) from previous treatment cycle requires more than 6, but less than 8 wk—delay dosing for up to 2 wk, and temporarily reduce dose to 11 mg/m² (33 mg/m²/day, 99 mg/m²/cycle) upon restarting therapy.

- If hematologic recovery requires more than 8, but less than 10 wk—Patient should be assessed for disease progression (by bone marrow aspirates); in the absence of progression, delay dosing for up to 2 more wk and reduce dose as above upon restarting, then maintain or increase in subsequent cycles as clinically indicated.

### IV Administration

- **pH:** 6.7–7.3.

- **Intermittent Infusion:** Reconstitute with 10 mL of Sterile Water for injection for a concentration of 5 mg/mL. **Diluent:** Immediately after reconstitution, dilute further with 0.9% NaCl, D5W, or LR. **Concentration:** 0.1–1.0 mg/mL. Unless used within 15 min of reconstitution, dilute solution must be prepared using cold infusion fluids and refrigerated until administration (maximum of 7 hr). **Rate:** Administer over 3 hr or over 1 hr, depending on treatment regimen chosen.

### Patient/Family Teaching

- Caution patient to avoid crowds and persons with known infections. Report symptoms of infection (fever, chills, cough, hoarseness, sore throat, lower back or side pain, painful or difficult urination) immediately.

- Instruct patient to report unusual bleeding. Advise patient of thrombocytopenia precautions (use soft toothbrush and electric razor, avoid falls, do not drink alcoholic beverages or take medication containing aspirin or NSAIDs; may precipitate gastric bleeding).

- Inform patient that this medication may have teratogenic effects. Advise women to use effective contraception and avoid becoming pregnant during treatment. Advise men not to father a child during or for 2 mo after treatment.

### Evaluation/Desired Outcomes

- Improved hematologic and clinical manifestations of MDS.