bevacizumab (be-va-ki-soo-mab)

**Category**

**Classification** Therapeutic: antineoplastics Pharmacologic: monoclonal antibodies

**Pregnancy Category C**

**Indications**

First- or second-line treatment of metastatic colon or rectal carcinoma (with IV 5-fluorouracil-based chemotherapy for first-line therapy; with fluoropyrimidine-irinotecan or fluoropyrimidine-oxaliplatin based chemotherapy for second-line therapy, first-line treatment of patients with unresectable, locally advanced, recurrent or metastatic non-squamous, non-small cell lung cancer with carboplatin and paclitaxel; patients with progressive glioblastoma following prior therapy. Metastatic renal cell carcinoma (with interferon alfa).

**Action**

A monoclonal antibody that binds to vascular endothelial growth factor (VEGF), preventing its attachment to binding sites on vascular endothelium, thereby inhibiting growth of new blood vessels (angiogenesis).

**Therapeutic Effects:** Decreased metastatic disease progression and microvascular growth.

**Pharmacokinetics**

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

**Distribution:** Unknown.

**Metabolism and Excretion:** Unknown.

**Half-life:** 20 days (range 11–50 days).

**TIME/ACTION PROFILE**

<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>14 days</td>
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**Contraindications/Precautions**

- Hypersensitivity; Recent hemoptysis or other serious recent bleeding episode; First 28 days after major surgery; GI leakage is critical in the developing fetus. Contraindicated unless benefit to mother outweighs potential fetal harm.
- **Cautions:** Discontinue during treatment and, due to long half-life, for several weeks following treatment.

**Use Cautiously in:** Cardiovascular disease; Pedi: Safety not established; Geri: q risk of serious adverse reactions including arterial thromboembolic events.

**Adverse Reactions/Side Effects**

**CNS:** reversible posterior leukoencephalopathy syndrome (RPLS).

**CV:** HF, THROMBOEMBOLIC EVENTS, hypertension, hypotension.

**Resp:** HEMOPTYSIS, non-gastointestinal fistulas, nasal septum perforation.

**GI:** GI PERFORATION.

**GU:** nephrotic syndrome, ovarian failure, proteinuria.

**Hemat:** BLEEDING.

**Derm:** NECROTIZING FASCIITIS.

**Misc:** WOUND DEHISCENCE, impaired wound healing, infusion reactions.

**Interactions**

**Drug-Drug:** q increased blood levels of SN 38 (the active metabolite of irinotecan); significance is not known. q increased risk of microangiopathic hemolytic anemia when used with sunitinib; concurrent use should be avoided.

**Route/Dosage**

**Colorectal Cancer**

**IV (Adults):**
- 5 mg/kg every 14 days when used in combination with bolus-IFL chemotherapy regimen; 10 mg/kg every 14 days when used with FOLFOX4 chemotherapy regimen; 5 mg/kg every 14 days or 7.5 mg/kg every 21 days when used in combination with a fluoropyrimidine-irinotecan or fluoropyrimidine-oxaliplatin based chemotherapy regimen.

**Lung Cancer**

**IV (Adults):** 15 mg/kg every 3 wk.

**Glioblastoma**

**IV (Adults):** 10 mg/kg every 14 days.

**Renal Cell Carcinoma**

**IV (Adults):** 10 mg/kg every 14 days.

**NURSING IMPLICATIONS**

**Assessment**

- Assess for signs of GI perforation (abdominal pain associated with constipation and vomiting). GI leakage is critical in the developing fetus. Contraindicated unless benefit to mother outweighs potential fetal harm.

**Nursing Considerations**

- Discontinue during treatment and, due to long half-life, for several weeks following treatment.

**Use Cautiously in:** Cardiovascular disease; Pedi: Safety not established; Geri: q risk of serious adverse reactions including arterial thromboembolic events.
Assess for signs of hemorrhage (epistaxis, hemoptysis, bleeding) and thromboembolic events (stroke, MI, deep vein thrombosis, pulmonary embolus) during therapy; may require discontinuation.

Monitor BP every 2–3 wk during therapy. Temporarily suspend therapy during severe hypertension not controlled with medical management; permanently discontinue if hypertensive crisis occurs.

Assess for infusion reactions (stridor, wheezing) during therapy.

Assess for signs of HF (dyspnea, peripheral edema, rales/crackles, jugular venous distension) during therapy.

Monitor for signs of RPLS (headache, seizure, lethargy, confusion, blindness). Hypertension may or may not be present. May occur within 16 hr to 1 yr of initiation of therapy. Treat hypertension if present and discontinue bevacizumab therapy. Symptoms usually resolve within 14 days.

Lab Test Considerations: Monitor serial urinalysis for proteinuria during therapy. Patients with a urine dipstick result of 2+ or greater require further testing with a 24-hr urine collection. Suspend therapy for >2 grams of proteinuria/24 hours and resume when proteinuria is ≤2 gm/24 hours. Discontinue therapy in patients with nephrotic syndrome.

May cause leukopenia, thrombocytopenia, hypokalemia, and hyperkalemia.

Potential Nursing Diagnoses
- Ineffective tissue perfusion (Adverse reactions)
- Ineffective tissue perfusion (Implementation)
- Social isolation (Implementation)

IV Administration
- pH: 6.2
- Intermittent Infusion: Diluent: White preservative-free solution in 100 mL of 0.9% NaCl. Do not shake. Discard unused portions. Do not administer solution that is discolored or contains particulate matter. Stable if refrigerated for up to 8 hr.
- Rate: Administer initial dose over 90 min. If well tolerated, second infusion may be administered over 60 min. If well tolerated, all subsequent infusions may be administered over 30 min. Do not administer as an IV push or bolus.
- Additive Incompatibility: Do not mix or administer with dextrose solutions.

Patient/Family Teaching
- Inform patient of purpose of medication.
- Advise patient of the need for monitoring BP periodically during therapy; notify health care professional if BP is elevated.
- Advise patient to report any signs of bleeding, unusual bleeding, high fever, rigors, sudden onset of worsening neurocognitive function, or persistent or severe abdominal pain, severe constipation, or vomiting immediately to health care professional.
- Advise patient of increased risk of wound healing complications and arterial thromboembolic events.
- Bevacizumab is teratogenic. Advise female patients to use effective contraception during and for at least 6 mo after last dose. Inform female patient of risk of ovarian failure that may lead to sterility following therapy.

Evaluation/Desired Outcomes
- Decreased metastatic disease progression and microvascular growth.

Why was this drug prescribed for your patient?