floxuridine (flóx-yoor-i-deen)
FUDR

**Classification**
- Therapeutic: antineoplastics
- Pharmacologic: antimetabolites

**Pregnancy Category D**

**Indications**
Treatment of hepatic metastases of gastrointestinal carcinoma.

**Action**
Inhibits DNA and RNA synthesis by preventing thymidine production (cell-cycle S phase-specific). Therapeutic Effects: Death of rapidly replicating cells, particularly malignant ones.

**Pharmacokinetics**
- **Absorption:** Administered intra-arterially only, resulting in direct delivery to tumor sites.
- **Distribution:** Distributes mostly to tumor site as a result of elective intra-arterial administration.
- **Metabolism and Excretion:** Rapidly converted to floxuridine monophosphate (an active metabolite) and fluorouracil; 60–80% excreted by the lungs as respiratory CO. Small amounts of fluorouracil (10–15%) excreted unchanged by the kidneys.
- **Half-life:** Fluorouracil—20 hr.

**TIME/ACTION PROFILE (effects on blood counts†)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra-arterial</td>
<td>1–9 days</td>
<td>9–21 days</td>
<td>30 days</td>
</tr>
</tbody>
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†Noted as effects due to conversion to fluorouracil

**Contraindications/Precautions**
- **Contraindicated in:** Hypersensitivity; Pregnancy or lactation.
- **Use Cautiously in:** Patients with childbearing potential; Hepatic or renal dysfunction; History of high-dose pelvic irradiation or previous use of alkylating agents, biologics; Bone marrow reserve.

**Adverse Reactions/Side Effects**
- **CNS:** Headache, fatigue.
- **GI:** Bleeding, diarrhea, gastritis, nausea, stomatitis, vomiting, anorexia, ulcer.
- **Derm:** Alopecia, erythema, maculopapular rash.
- **Endo:** Gonadal suppression.
- **Hemat:** Anemia, leukopenia, thrombocytopenia.
- **Misc:** Fever.

**Interactions**
- **Drug-Drug:** Additive bone marrow depression with other bone marrow depressants (antineoplastics, and radiation therapy). Concomitant use of potentiation or cause fatal pulmonary toxicity (avoid concomitant use). May decrease antibody response to live-virus vaccines and increase risk of adverse reactions.

**Route/Dosage**
- **Intraarterial (Adults):** 0.1–0.6 mg/kg/day as a continuous infusion for 14 days, followed by a 2-wk rest (only heparinized saline administered during this rest period).

**NURSING IMPLICATIONS**
- **Assessment**
  - Monitor vital signs prior to and frequently during therapy.
  - Assess nausea/vomiting, fatigue, number and consistency of stools, and frequency of vomiting frequently throughout therapy. (Assess for signs of infection [fever, chills, sore throat, cough, diarrhea]). Monitor for bleeding (bleeding gums, bruising, petechiae; guaiac test stools, urine, and emesis). Note BI injection sites and incision sites. Apply pressure to venipuncture sites for 10 min. Report symptoms of infection (inflammation or purpura/papules, uncontrolled vomiting, diarrhea [five or more loose stools/day], fever, tachycardia, tachypnea, leukocyte count <3500/mm³, platelet count <100,000/mm³). Hemorrhage from any site, or erythema at catheter insertion site, because drug will need to be discontinued. May be reinitiated at a lower dose when side effects have subsided.
  - Monitor intraocular pressure, appetite, and nutritional intake. Adjust diet to tolerate.
  - Assess for abdominal pain, cramping, anorexia, or jaundice with hepatic artery infusion. These symptoms may indicate hepatotoxicity. Black, tarry stools or melena indicate dislodgment of catheter.
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Lab Test Considerations: Hepatic, renal, and hematologic functions should be monitored prior to and periodically throughout therapy. Notify physician immediately if SGOT >350 U/L or platelets <100,000/mm3. These values are critical for determination of the medication. Increased serum alkaline phosphatase, AST, ALT, LDH, and bilirubin may indicate drug-induced hepatotoxicity or biliary sclerosis.

Interactions with SSRI, proton-pump, and sedation rate assays.

Potential Nursing Diagnoses
- Risk for infection (Side Effects)
- Imbalanced nutrition: less than body requirements (Side Effects)

Implementation
- High Alert: Fatalities have occurred with incorrect administration of chemotherapy agents. Before administration, 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 biologic cabinet. Wear gloves, gown, and mask while handling medication. Discard equipment in specially designated containers.

- Intra-arterial Infusion Pump: Reconstitute 5-mL vial with 5 mL of sterile water for injection to yield a concentration of 100 mg/mL. Further dilute in D5W or 0.9% NaCl to volume required by arterial infusion pump. Stable for 2 wk if refrigerated.

- Y-Site Compatibility: amifostine, aztreonam, etoposide, filgrastim, fludarabine, gemcitabine, granisetron, melphalan, ondansetron, paclitaxel, piperacillin/tazobactam, sargramostim, teniposide, thiotepa, vinorelbine.

- Y-Site Incompatibility: allopurinol, cefepime.

Patient/Family Teaching
- Instruct patient to notify health care professional of fever, chills, sore throat, signs of infection, bleeding gums, bruising, blood in urine or stool, jaundice, abdominal pain, local irritation at the site of arterial cannulation, or emesis occurs. Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor. Other oral hygiene precautions are also required in this patient. Patient should be cautioned not to drink alcohol or use any product containing aspirin or NSAIDs.

- Advise patient to rinse mouth with clear water after eating and drinking to minimize stomatitis. Health care professional may order viscous lidocaine or other local anesthetics if mouth pain interferes with eating. Stomatitis pain may require treatment with opioid analgesics.

- Review with patient the possibility of hair loss. Explore methods of coping.

- Emphasize the importance of routine follow-up lab tests to monitor progress and to check for side effects.

Evaluation/Desired Outcomes
- Tumor size regression.

Why was this drug prescribed for your patient?