Indomethacin (in-doe-meth-a-sin)


**Classification**
- Therapeutic: anti-inflammatory, anti-anginal (I.V only), anti-infective.
- Chemical: Indole derivative.

**Indications**
- P.O.: Inflammatory disorders including: Rheumatoid arthritis, Ankylosing spondylitis. Generally reserved for patients who do not respond to less toxic agents. PO-ER (anti-inflammatory) up to 7 days 1–2 wk 4–6 hr PO (analgesic) 30 min 0.5–2 hr 4–6 hr IV (analgesic) 30 min unknown 4–6 hr.
- I.V (in-doe-meth-ac-in)

**Contraindications**
- Known sensitivity to indomethacin.
- Hypersensitivity to ibuprofen (or other NSAIDs).
- Histories of gastrointestinal bleeding, ulcer disease; Precipit or recent history of rectal bleeding, Intramural hemorrhage, Thrombocytopenia.

**Actions**
- Indomethacin competitively inhibits the synthesis of prostaglandin E2 in all species studied. It is a nonsteroidal anti-inflammatory agent that suppresses synthesis of prostaglandins.
- Indomethacin is a competitive inhibitor of arachidonic acid cyclooxygenase, blocking the formation of prostaglandins.

**Pharmacokinetics**
- Absorption: Well absorbed after oral administration in adults, incomplete oral absorption in neonates.
- Distribution: The volume of distribution is approximately 0.4 L/kg.
- Metabolism and Excretion: Metabolized by the liver. The plasma half-life is 2.6–11 hr.
- Protein Binding: 99%.
- Elimination: The half-life is 2.6–11 hr.

**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>Oral</td>
<td>1 hr.</td>
<td>4–6</td>
<td>4–6 hr.</td>
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**Indications**
- Pain and inflammation.
- Indications: Acute and chronic pain, nonsteroidal anti-inflammatory agents

**Adverse Reactions/Side Effects**
- CV:
  - Hypertension, edema, constipation, tinnitus.
- CNS:
  - Dizziness, headache, nervousness, drowsiness, depression.
- GI:
  - Gastric irritation, epigastric distress, nausea, vomiting, diarrhea, constipation, dyspepsia, anorexia, oral thrush.
- Hemat:
  - Bleeding, suppression of bone marrow (potentially reversible), hemolytic anemia, agranulocytosis, leukopenia, thrombocytopenia, blood dyscrasias.
- GU:
  - Rashes.
- Hypersensitivity:
  - Anaphylaxis.

**Contraindications/Precautions**
- Use cautiously in: Pedi: newborns, premature infants with PDA.
- OB: Not recommended during 2nd half of pregnancy; risk of nonreassuring fetal heart rate tracings.
- Lactation: Not recommended; breast feeding (AAP).
gle bedtime dose of 100 mg may be used. Divided doses — 100 mg initially, followed by 50 mg every 6–8 hr for relief of pain, then further.

PO (Children <2 yr): 0.5–2 mg/kg/day in 2–4 divided doses (not to exceed 4 mg/kg/day or 150–200 mg/day).

PDA Closure

IV (Normotensive): Dose: — 0.2 mg/kg initially, then 2 subsequent doses at 12–24 hr intervals of 0.1 mg/kg/day — 0.5–1 mg/kg/day at time of initial dose; 0.2 mg/kg if 6–7 days at initial dose; 0.25 mg/kg if 6–7 days at initial dose; 0.3–0.5 mg/kg if 6–7 days at initial dose. Prophylaxis: — 0.3–0.4 mg/kg initially, then 0.1 mg/kg q 12–24 hr for 2 doses.

NURSING IMPLICATIONS

Assessment

- Patients who have asthma, aspirin-induced allergy, and nasal polyps are at increased risk for developing hypersensitivity reactions. Monitor for rhinitis, asthma, and urticaria.
- Arthritis: Assess limitation of movement and pain — note type, location, and intensity before and 1–2 hr after administration.
- PDA: Monitor respiratory status, heart rate, BP, echocardiogram, and heart sounds routinely throughout therapy.
- Monitor intake and output. Fluid restriction is usually instituted throughout therapy.

- Lab Test Considerations:
  - Evaluate BUN, serum creatinine, CBC, serum potassium levels, and liver function tests periodically in patients receiving prolonged therapy.
  - Serum potassium, BUN, serum creatinine, AST, and ALT tests may show levels.
  - Glucose and urine protein concentrations may be.
  - Leukocyte and platelet count may be.
  - Blood glucose concentrations may be altered. Hemoglobin and hematocrit concentrations, leukocyte and platelet counts, and C-reactive protein levels may be.
  - Baseline hematologic and coagulation studies should be done before therapy.

Potential Nursing Diagnoses

- Acute pain (Indications)
- Impaired physical mobility (Indications)

Implementation

- If prolonged therapy is used, dose should be reduced to the lowest level that controls symptoms.
- PO: Administer after meals, with food, or with antacids to decrease GI irritation. Do not break, crush, or chew sustained-release capsules.
- Make suspension before administration. Do not mix with antacid or any other liquid.

IV Administration

- pH: 6.0–7.5
- Direct IV: Diluent: Preservative-free 0.9% NaCl or preservative-free sterile water. Concentration: 0.5–1 mg/mL. Reconstitute immediately before use and discard any unused solution. Do not dilute further or admix. Do not administer via umbilical or caval vein into vessels near the superior mesenteric artery, as these can cause vasoconstriction and compromise blood flow to the intestines. Do not administer intra-arterially. Rate: Administer over 20–30 min. Avoid extravasation, as solution is irritating to tissues.

Y-Site Compatibility:

- Furosemide, insulin, nitroprusside, potassium chloride, sodium bicarbonate.

Y-Site Incompatibility:

- Calcium gluconate, cimetidine, dobutamine, dopamine, gentamicin, levofloxacin, tobramycin, tolazoline.

Patient/Family Teaching

- Advise patient to take this medication with a full glass of water and to remain in an upright position for 15–30 min after administration.
- Intact daily dose as soon as remembered if not almost time for next dose. Do not double doses.
- May cause drowsiness or dizziness. Advise patient to avoid driving or other activities requiring alertness until response to medication is known.
- Caution patient to avoid the concurrent use of alcohol, aspirin, other NSAIDs, acetaminophen, or other OTC medications without consulting health care professional.
- Caution patient to wear sunscreen and protective clothing to prevent photosensitivities reactions.
- Advise patient to inform health care professional of medication regimen before treatment or surgery.
- Instruct patient to notify health care professional if rash, itching, chills, fever, nausea, vomiting, visual disturbances, weight gain, edema, abdominal pain, black stools, or persistent headache occurs.
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- PDA: Explain to parents the purpose of medication and the need for frequent monitoring.

Evaluation/Desired Outcomes

- Decrease in severity of moderate pain.
- Improved joint mobility. Partial arthritic relief is usually seen within 2 wk, but maximum effectiveness may require up to 1 mo of continuous therapy. Patients who do not respond to one NSAID may respond to another.
- Successful PDA closure.

Why was this drug prescribed for your patient?