ISOSORBIDE
isosorbide dinitrate
(eye-soe-soe bide dye-eye-trate )
(eye-soe-soe bide dye-nye-trate )
isosorbide mononitrate
(eye-soe-soe bide mo-noe-trate )
Dilatrate-SR, Isordil
Imdur, Ismo, Monoket
Classification
Therapeutic: antianginals
Pharmacologic: nitrates
Pregnancy Category: C
Indications
Acute treatment of anginal attacks (oral only). Prophylactic management of angina pectoris.
Unlabeled Use: Treatment of chronic heart failure (unlabeled).
Action
Produce vasodilation (venous greater than arterial). Decrease left ventricular end-diastolic pressure and left ventricular end-diastolic volume (preload). Net effect is reduced myocardial oxygen consumption. Increase coronary blood flow by dilating coronary arteries and improving collateral flow to ischemic regions.
Therapeutic Effects: Relief and prevention of anginal attacks.
Pharmacokinetics
Absorption: Isosorbide dinitrate undergoes extensive first-pass metabolism by the liver, resulting in 25% bioavailability; isosorbide mononitrate has 100% bioavailability (does not undergo first-pass metabolism).
Distribution: Unknown.
Metabolism and Excretion: Isosorbide dinitrate is metabolized by the liver to 2 active metabolites (5–mononitrate and 2–mononitrate). Isosorbide mononitrate is primarily metabolized by the liver to inactive metabolites, primarily excreted in urine as metabolites.
Half-life: Isosorbide dinitrate—1 hr; isosorbide mononitrate—5 hr.
TIME/ACTION PROFILE (cardiovascular effects)
ROUTE ONSET PEAK DURATION
ISDN-SL 2–10 min unknown 1–2 hr
ISDN-PO 45–60 min unknown 4 hr
ISDN-PO-ER 30 min unknown up to 12 hr
ISMN-PO 30–60 min unknown 7 hr
ISMN-ER unknown unknown 12 hr
Contraindications/Precautions
Contraindicated in: Hypersensitivity; Concurrent use of sildenafil, vardenafil, or tadalafil.
Use Cautiously in: Volume depleted patients; Right ventricular infarction; Hypertrophic cardiomyopathy; OB: May compromise maternal/fetal circulation; Lactation: No data available; Pedi: Safety not established; Geri: Initial dose ↓ required due to potential for hypotension.
Adverse Reactions/Side Effects
CNS: Dizziness, headache.
CV: Hypotension, tachycardia, paradoxic bradycardia, syncope, MI, tachycardia, MI, edema, edema.
GI: Nausea, vomiting.
Misc: Flushing, tolerance.
Interactions
Drug-Drug: Concurrent use of sildenafil, vardenafil, or tadalafil may result in significant and potentially fatal hypotension (do not use within 24 hr of isosorbide dinitrate or mononitrate). Additive hypotension with antihypertensives, acute ingestion of alcohol, beta blockers, calcium channel blockers, and phenothiazines.
Route/Dosage
Isosorbide Dinitrate
SL (Adults): Acute attack of angina pectoris—2.5–5 mg may be repeated q 5–10 min for 3 doses in 15–30 min. Prophylaxis of angina pectoris—2.5–5 mg given 15 min prior to activities known to provoke angina.
PO (Adults): Prophylaxis of angina pectoris—5–20 mg 2–3 times daily; usual maintenance dose is 10–40 mg q 6–8 hr (immediate-release) or 40–80 mg q 12 hr (sustained-release).

Contraindicated
- Discontinued
**Isosorbide Mononitrate**

**PO (Adults):** ISMO, Monoket—5–20 mg twice daily with the 2 doses given 7 hr apart. Imdur—10–60 mg once daily; may ↑ to 120 mg once daily (maximum dose = 240 mg/day).

**NURSING IMPLICATIONS**

- **Assessment**
  - Assess location, duration, intensity, and precipitating factors of anginal pain.
  - Monitor BP and pulse routinely during period of dosage adjustment.
- **Lab Test Considerations:** Decrease doses may ↑ methemoglobin concentrations.

**Potential Nursing Diagnoses**

- Ineffective tissue perfusion (Indications)
- Activity intolerance (Indications)

**Implementation**

**Isosorbide Dinitrate**

- Do not confuse Isordil (isosorbide dinitrate) with Plendil (felodipine).
- PO: Swallow extended-release capsules whole; do not break, crush, or chew.
- SL: Tablets should be held under tongue until dissolved. Avoid eating, drinking, or smoking until tablet is dissolved. Replace tablet if inadvertently swallowed.

**Isosorbide Mononitrate**

- PO: Extended-release tablets should be swallowed whole. Do not break, crush, or chew.

**Patient/Family Teaching**

- Instruct patient to take medication as directed, even if feeling better. Take missed doses as soon as remembered; doses of isosorbide dinitrate should be taken at least 2 hr apart (6 hr with extended-release preparations); daily doses of isosorbide mononitrate should be taken 7 hr apart. Do not double doses. Do not discontinue abruptly.
- Caution patient to make position changes slowly to minimize orthostatic hypotension.
- May cause dizziness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known. Patient may avoid last dose of day (when taking 2–4 doses/day) no later than 7 pm to prevent the development of tolerance.
- Advise patient to avoid concurrent use of alcohol with this medication. Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult health care professional before taking other Rx, OTC, or herbal products.
- Inform patient that headache is a common side effect that should decrease with continuing therapy. Aspirin or acetaminophen may be ordered to treat headache. Notify health care professional if headache is persistent or severe. Do not allow close to avoid headache.
- Advise patient to notify health care professional if dry mouth or blurred vision occurs.
- Evaluation/Desired Outcomes
  - Decrease in frequency and severity of anginal attacks.

**Why was this drug prescribed for your patient?**