ferrous sulfate (30% elemental iron) (fer-us sul-fate)

Classifications
Therapeutic: antianemics
Pharmacologic: iron supplements

Indications
PO: Treatment & prevention iron deficiency anemia.

Action
An essential mineral found in hemoglobin, myoglobin, and many enzymes. Enters the bloodstream and is transported to the organs of the reticuloendothelial system (liver, spleen, bone marrow) where it becomes part of iron stores. Therapeutic Effects: Resolution or prevention of iron deficiency anemia.

Pharmacokinetics
Absorption: Approximately 5–10% of dietary iron is absorbed (up to 30% in deficiency states). Therapeutically administered PO iron is up to 60% absorbed via active and passive transport processes.
Distribution: Remains in the body for many months. Crosses the placenta; enters breast milk.
Protein Binding: 90%.
Metabolism and Excretion: Mostly recycled; small daily losses occurring via desquamation, sweat, urine, and bile.
Half-life: 

Therapeutic Effects: Resolution or prevention of iron deficiency anemia.

Contraindications/Precautions
Use Cautiously in: Peptic ulcer disease; Ulcerative colitis or regional enteritis (condition may be aggravated); Alcoholism; Severe hepatic impairment; Severe renal impairment.

Adverse Reactions/Side Effects
CNS: Dizziness, headache, vertigo.
GI: Nausea, constipation, dark stools, vomiting.
Misc: temporary staining of teeth (liquid preparations).

Interactions
Drug-Drug: p absorption of tetracyclines, fluoroquinolones, bisphosphonates, levodopa, mycophenolate mofetil, and penicillamine (simultaneous administration should be avoided). p effects of and tetracyclines. Concurrent administration of proton pump inhibitors, histamine H2 antagonists, and chloroquine may p absorption of iron. Doses of chloroquine and vitamin E may p hematologic response to iron therapy.
Drug-Food: p absorption of and may p effects of levodopa and methyldopa. Concurrent administration of proton pump inhibitors, histamine H2 antagonists, and cholestyramine may p absorption of iron. Doses of ascorbic acid may p absorption of iron by up to 30%. Chloramphenicol and vitamin E may p hematologic response to iron therapy.

Route/Dosage
PO: Deficiency—2–3 mg/kg/day in 2–4 divided doses or 60–100 mg elemental iron orally daily. Prophylaxis—40–100 mg elemental iron orally daily.
PO (Infants and Children): Severe deficiency—one or two divided doses. Mild to moderate deficiency—one or two divided doses.
PO (Neonates, premature): 2–4 mg/kg/day in 1–2 divided doses, maximum of 15 mg/day.

NURSING IMPLICATIONS
Assessment
● Review nutritional status and dietary history to determine possible cause of anemia and need for patient teaching.

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Use Cautiously in: Peptic ulcer disease, Ulcerative colitis or regional enteritis (condition may be aggravated). Alcoholism, Severe hepatic impairment, Severe renal impairment.
Assess bowel function for constipation or diarrhea. Notify physician or other health care professional and use appropriate nursing measures should these occur.

Lab Test Considerations: Monitor hemoglobin, hematocrit, and reticulocyte values prior to and every 3 wk during the first 2 mo of therapy and periodically thereafter. Serum ferritin and iron levels may also be monitored to assess effectiveness of therapy.

Occult blood in stools may be obscured by black coloration of iron in stool. Guaiac test results may occasionally be false-positive. Sedimentation rate results are not affected by iron preparations.

Toxicity and Overdose: Early symptoms of overdose include stomach pain, fever, nausea, vomiting (may contain blood), and diarrhea. Late symptoms include blue lips, fingernails, and palms; drowsiness; weakness; tachycardia; seizures; metabolic acidosis; hepatic injury; and cardiovascular collapse. Patient may appear to recover prior to the onset of late symptoms. Therefore, hospitalization continues for 24 hr after patient becomes asymptomatic to monitor for delayed onset of shock or bleeding. Late complications of overdose include intestinal obstruction, pyloric stenosis, and gastric scarring.

If patient is comatose or seizing, gastric lavage with sodium bicarbonate is performed. Deferoxamine is the antidote. Additional supportive treatments to maintain fluid and electrolyte balance and correction of metabolic acidosis are also indicated.

Potential Nursing Diagnoses

Activity intolerance (Indications)

Implementation

Discontinue oral iron preparations prior to parenteral administration.

Oral preparations are most effectively absorbed if administered 1 hr before or 2 hr after meals. If gastric irritation occurs, administer with meals. Take tablets and capsules with a full glass of water or juice. Do not crush enteric-coated tablets and do not open capsules.

Stools may become dark green or black. Avoid using antacids, coffee, tea, dairy products, eggs, or whole-grain breads with or within 1 hr after administration of ferrous salts. Iron absorption is decreased by 33% if iron and calcium are given with meals.

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Patient/Family Teaching

Explain purpose of iron therapy to patient.

Encourage patient to comply with medication regimen. Take missed doses as soon as remembered within 12 hr; otherwise, return to regular dosing schedule. Do not double doses.

Adviser patient that stools may become dark green or black.

Instruct patient to follow a diet high in iron.

Discuss with parents the risks of a child overdosing on iron. Medication should be stored in the original childproof container and kept out of reach of children. Do not refer to vitamins as candy. In the event of a suspected overdose, parents should contact poison control center (1-800-222-1222) or emergency medical services (911) immediately.

Evaluation/Desired Outcomes

Increase in hemoglobin, which may reach normal parameters after 1–2 mo of therapy. May require 3–6 mo for normalization of body iron stores.

Improvement or prevention of iron deficiency anemia.

Why was this drug prescribed for your patient?