**spironolactone** (spir-o-nolak-tone)

**Classification**
Therapeutic: diuretics, potassium-sparing diuretics

**Pregnancy Category:** C

**Indications**

**Action**
Causes loss of sodium bicarbonate and calcium while saving potassium and hydrogen ions by antagonizing aldosterone.

**Therapeutic Effects:**
Increased survival in patients with severe heart failure (New York Heart Association class II-IV). Weak diuretic and antihypertensive response when compared with other diuretics. Conservation of potassium.

**Pharmacokinetics**
Absorption: 90% absorbed.
Distribution: Crosses the placenta; enters breast milk.
Protein Binding: 90%.
Metabolism and Excretion: Converted by the liver to its active diuretic compound (canrenone).
Half-life: 78–84 min (spironolactone); 13–24 hr (canrenone).

**TIME/ACTION PROFILE (diuretic effect)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>unknown</td>
<td>1–3 hr</td>
<td>2–3 days</td>
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</table>

**Contraindications/Precautions**

**Contraindicated in:** Hypersensitivity, anuria, acute renal insufficiency. Significant renal impairment (CCr <30 mL/min); SCr >2.5 mg/dL (for patients with heart failure). Hyperkalemia, Addison’s disease, concurrent use of eplerenone. Use cautiously in: Hepatic dysfunction; geriatric or debilitated patients or patients with diabetes mellitus (risk of hyperkalemia). OB, Lactation: May cause endocrine dysfunction in infants. Alternative method of feeding should be used if spironolactone is essential.

**Adverse Reactions/Side Effects**

**CNS:** dizziness, clumsiness, headache, sedation.
**CV:** arrhythmias.
**GI:** GI irritation.
**GU:** erectile dysfunction, dysuria.
**Endo:** amenorrhea, gynecomastia (in males), breast tenderness, deepening of voice, q hair growth (in females), sexual dysfunction.
**F and E:** hyperkalemia, hyponatremia, hyperchloremic metabolic acidosis.

**Hemat:** agranulocytosis, thrombocytopenia.
**Derm:** DRUG RASH WITH EOSINOPHILIA AND SYSTEMIC SYMPTOMS (DRESS), STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, alopecia, pruritis.
**MS:** muscle cramps.
**Misc:** allergic reactions.

**Interactions**

**Drug-Drug:** Use with eplerenone q risk of hyperkalemia; concurrent use contraindicated. Hypotension with acute ingestion of alcohol, other antihypertensive agents, or nitrate. Use with ACE inhibitors, NSAIDs, potassium supplements, angiotensin II receptor antagonists, potassium-sparing diuretics, angiotensin converting enzyme inhibitors, or cyclosporine q risk of hyperkalemia. Thiazide diuretics, amiloride, and spironolactone may be used with furosemide and diuretics to lower the risk of hyperkalemia. Concurrent use of digoxin, angiotensin converting enzyme inhibitors, or angiotensin II receptor antagonists with potassium-sparing diuretics, angiotensin converting enzyme inhibitors, or cyclosporine q risk of hyperkalemia.

**Route/Dosage**

PO (Adults):
- 25–400 mg/day as a single dose or 2 divided doses.
- HF—25–50 mg/day.

PO (Children ³1 mo):
- Diuretic, hypertension—1.5–3.3 mg/kg/day (60 mg/m²/day) as a single dose or 2–4 divided doses.
- Diagnosis of primary aldosteronism—100–400 mg/m²/day in 1–2 divided doses.
- (Neonates) 1–3 mg/kg/day divided q 12–24 hr.

**NURSING IMPLICATIONS**

**Assessment**
- Monitor intake and output ratios and daily weight during therapy.
- If medication is given as an adjunct to antihypertensive therapy, BP should be evaluated before administering.

**Nursing Considerations**
- Discontinue.
Monitor response of signs and symptoms of hypokalemia (weakness, fatigue, U wave on ECG, arrhythmias, polyuria, polydipsia). Assess patient frequently for development of hypokalemia (fatigue, muscle weakness, parasthesia, constipation, dyspnea, cardiac arrhythmia). Patients who have diabetes mellitus or kidney disease and elderly patients are at increased risk of developing these symptoms.

Periodic EKG may be recommended in patients receiving prolonged therapy.

Assess patient for skin rash frequently during therapy. Discontinue diuretic at first sign of rash; may be life-threatening. Stevens-Johnson syndrome or toxic epidermal necrolysis may develop. Treat symptomatically; may recur once treatment is stopped.

Lab Test Considerations: Evaluate serum potassium levels prior to and routinely during therapy. Withhold drug and notify health care professional if patient becomes hyperkalemic.

Monitor BUN, serum creatinine, and electrolytes prior to and periodically during therapy. May cause sodium, magnesium, uric acid, BUN, creatinine, potassium, plasma renin activity, and urinary calcium excretion levels. May also cause increased serum magnesium, uric acid, BUN, creatinine, potassium, plasma renin activity, and urinary calcium excretion levels. May also cause decreased sodium levels.

Discontinue potassium-sparing diuretics 3 days prior to a glucose tolerance test because of risk of severe hyperkalemia.

May cause false test results of plasma cortisol concentrations. Spironolactone should be withdrawn 4–7 days before test.

Potential Nursing Diagnoses
- Excess fluid volume (Indications)

Implementation
- PO: Administer in AM to avoid interrupting sleep pattern.
- Administer with food or milk to minimize gastric irritation and to increase bioavailability.

Patient/Family Teaching
- Emphasize the importance of continuing to take this medication, even if feeling well. Instruct patient to take medication, at the same time each day. Take missed doses as soon as remembered unless almost time for next dose. Do not double doses.

Caution patient to avoid salt substitutes and foods that contain high levels of potassium unless prescribed by health care professional.
- May cause dizziness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.

- 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 any OTC medications concurrently with this therapy, especially OTC decongestants, cough or cold preparations, or appetite suppressants due to potential increased BP.

- Instruct patient to notify health care professional of medication regimen prior to treatment or surgery.

- Advise patient to notify health care professional of rash, muscle weakness or cramps, fatigue, or severe nausea, vomiting, or diarrhea occurs.

- Advise female patients to notify health care professional of pregnancy if suspected or if breast feeding.

- Emphasize the need for follow-up exams to monitor progress.

- Hyperkalemia: Reinforce need to continue additional therapies for hyperkalemia (weight loss, restricted sodium intake, stress reduction, moderation of alcohol intake, regular exercise, and cessation of smoking). Medication helps control but does not cure hyperkalemia.

- Teach patient and family the correct technique for checking BP weekly.

Evaluation/Desired Outcomes
- Increase in diuresis and decrease in edema while maintaining serum potassium level in an acceptable range.
- Decrease in BP.
- Prevention of hypokalemia in patients taking diuretics.
- Treatment of hyperaldosteronism.

Why was this drug prescribed for your patient?