torsemide (to-re-se-mide)

Demicals

Classification
Therapeutic: antihypertensives
Pharmacologic: loop diuretics

Pregnancy Category B

Indications
Edema due to HF, Hepatic or renal disease. Hypertension.

Action
Inhibits the reabsorption of sodium and chloride from the loop of Henle and distal renal tubule. Increases renal excretion of water, sodium, chloride, magnesium, hydrogen, and calcium. Effectiveness persists in impaired renal function.

Therapeutic Effects: Diuresis and subsequent mobilization of excess fluid (edema, pleural effusions). Decreased BP.

Pharmacokinetics
Absorption: 80% absorbed after oral administration.
Distribution: Widely distributed.
Protein Binding: 99%.
Metabolism and Excretion: 80% metabolized by liver, 20% excreted in urine.
Half-life: 3.5 hr.

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>within 60 min</td>
<td>60–120 min</td>
<td>6–8 hr</td>
</tr>
<tr>
<td>IV</td>
<td>within 10 min</td>
<td>within 60 min</td>
<td>6–8 hr</td>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity; Cross-sensitivity with thiazides and sulfonamides may occur; Hepatic coma or anuria.
Use Cautiously in: Severe liver disease (may precipitate hepatic coma, concurrent use with potassium-sparing diuretics may be necessary); Electrolyte depletion; Diabetes mellitus; Increasing azotemia; OB, Lactation, Pedi: Safety not established; Geri: May have ↑ risk of side effects, especially hypotension and electrolyte imbalances, at oral doses.

Adverse Reactions/Side Effects

Interactions
Drug-Drug: hypotension with antihypertensives, nitrates, or acute ingestion of alcohol. ↑ risk of hypokalemia with other diuretics, amphotericin B, stimulant laxatives, and corticosteroids. Hypokalemia may ↑ risk of digoxin toxicity and ↑ risk of arrhythmia in patients taking drugs that prolong the QT interval. May ↑ risk of lithium toxicity. ↑ risk of cuminisunity with aminoglycosides. NSAIDS may ↓ effects. Risk of salicylate toxicity (with use of high-dose salicylate therapy). Cholestyramine may ↓ absorption.

Route/Dosage

HF
PO, IV (Adults): 10–20 mg once daily; dose may be doubled until desired effect is obtained (maximum daily dose = 200 mg).

Chronic Renal Failure
PO, IV (Adults): 20 mg once daily; dose may be doubled until desired effect is obtained (maximum daily dose = 200 mg).

Hepatic Cirrhosis
PO, IV (Adults): 5–20 mg once daily (with aldosterone antagonist or potassium-sparing diuretic); dose may be doubled until desired effect is obtained (maximum daily dose = 40 mg).

Hypertension
PO, IV (Adults): 2.5–5 mg once daily; dose may be ↑ to 10 mg once daily after 4–8 wk (if blood pressure is not controlled, add another agent).

OTC/OTC
Diuretics: Selective diuretics indicate most frequent. Discontinued.
**194**

**NURSING IMPLICATIONS**

**Assessment**

- Assess fluid status during therapy. Monitor daily weight, intake and output ratios, amount and location of edema, lung sounds, skin turgor, and mucous membranes. Notify health care provider if thirst, dry mouth, lethargy, weakness, hypotension, or oliguria occurs.

- Monitor BP and pulse before and during administration. Monitor frequency of prescription refills to determine adherence in patients treated for hypertension.

- Assess patients receiving digoxin for anorexia, nausea, vomiting, injection site pain, edema, paraesthesias, and confusion. Patients taking digoxin are at increased risk of digoxin toxicity due to potassium-depleting effect of the diuretic. Potassium supplements or potassium-sparing diuretics may be used concurrently to prevent hypokalemia.

- Assess for allergy to sulfonamides.

- Assess patient for skin rash frequently during therapy. Discontinue torsemide 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.

- **Geri:**

  Diuretic use is associated with increased risk for falls in older adults. Assess falls risk and implement fall prevention strategies.

- **Lab Test Considerations:**

  Monitor electrolytes, renal and hepatic function, serum glucose, and uric acid levels before and periodically during therapy. May cause "pseudohyponatremia" and decreased serum sodium, potassium, calcium, and magnesium concentrations. May alter the following: BUN, serum glucose, creatinine, and uric acid levels.

**Potential Nursing Diagnoses**

- Excess fluid volume (Indications)

- Risk for deficient fluid volume (Side Effects)

**Implementation**

- **Administer medication in the morning to prevent disruption of sleep cycle.**

- **IV:**

  - **Direct IV:** Administer undiluted. **Concentration:** 10 mg/mL. **Rate:** Administer slowly over 2 min.

  - **Y-Site Compatibility:** milrinone, nesiritide.

- **PO:**

  - May be taken with food or milk to minimize gastric irritation.

- **Patient/Family Teaching**

  - Instruct patient to take torsemide as directed. Take missed doses as soon as possible; do not double doses.

  - Caution patient to change positions slowly to minimize orthostatic hypotension. Caution patient that the use of alcohol, exercise during hot weather, or standing for long periods during therapy may enhance orthostatic hypotension.

  - Instruct patient to consult health care professional regarding a diet high in potassium.

  - Advise patient to contact health care professional if they gain more than 2–3 lb/day.

  - 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.

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

  - Instruct patient to use sunscreen and protective clothing to prevent photosensitivity reaction.

  - Advise patient to contact health care professional immediately if rash or muscle weakness, cramps, nausea, dizziness, numbness, or tingling of extremities occurs.

  - Advise diabetic patients to monitor blood glucose closely; may cause increased blood glucose levels.

- **Emphasize the importance of routine follow-up examinations.**

- **Hypertension:**

  - Advise patients on antihypertensive regimen to continue taking medication even if feeling better. Torsemide controls but does not cure hypertension.

  - Reinforce the need to continue additional therapy for hypertension: weight loss, exercise, restricted sodium intake, stress reduction, regular exercise, moderation of alcohol consumption, cessation of smoking.

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  **CONTINUED**
torsemide

Evaluation/Desired Outcomes

- Decrease in edema.
- Decrease in abdominal girth and weight.
- Increase in urinary output.
- Decrease in BP.

Why was this drug prescribed for your patient?