

Furosemide

Classification

Antihypertensive, loop diuretic

Indications

■ CCP: Cardiogenic pulmonary edema

Contraindications

- Systolic blood pressure < 100 mmHg
- Hypersensitivity to furosemide or sulfonamide-derived drugs
- Complete renal shutdown
- Hepatic coma or precoma
- Known or suspected electrolyte imbalance, hypovolemia, dehydration, or hypotension
- Jaundice in newborn infants or infants with diseases capable of causing hyperbilirubinemia
- Pregnancy or breast-feeding

Adult dosages

■ CCP: Acutely decompensated cardiogenic pulmonary edema

- For patients with intact renal function: 40-80 mg IV/IO, or double the patient's usual daily dose
- For patients with known or suspected renal impairment (eGFR < 30 mL/minute/1.73 m²): higher doses may be required to achieve diuretic responses; single doses > 160-200 mg IV are unlikely to produce additional diuresis.

Pediatric Considerations And Dosing

Caution: Limited data available. Consultation with CiniCall is required.

Mechanism Of Action

Furosemide inhibits the reabsorption of sodium and chloride in the ascending loop of Henle, as well as the proximal and distal tubules.

Adverse Effects

Cardiovascular: Necrotizing angitis, orthostatic hypotension, thrombophlebitis

Dermatologic: Acute generalized exanthematous pustulosis, bulla (hemorrhagic), bullous pemphigoid, erythema multiforme, exfoliative dermatitis, lichenoid eruption, pruritus, skin photosensitivity, skin rash, Stevens-Johnson syndrome, toxic epidermal necrolysis, urticaria.

Endocrine & metabolic: Glycosuria, hyperglycemia, hyperuricemia, hypocalcemia, hypochloremic alkalosis, hypokalemia, hypomagnesemia, hypovolemia, increased serum cholesterol, increased serum triglycerides

Gastrointestinal: Abdominal cramps, anorexia, constipation, diarrhea, gastric irritation, nausea, oral irritation, pancreatitis, vomiting

Genitourinary: Bladder spasm

Hematologic & oncologic: Agranulocytosis, anemia, aplastic anemia, hemolytic anemia, leukopenia, purpuric disease, thrombocytopenia

Hepatic: Hepatic encephalopathy, increased liver enzymes, intrahepatic cholestatic jaundice

Hypersensitivity: Anaphylactic shock, anaphylaxis, angioedema, nonimmune anaphylaxis

Immunologic: Drug reaction with eosinophilia and systemic symptoms

Nervous system: Dizziness, headache, paresthesia, restlessness, vertigo

Neuromuscular & skeletal: Asthenia, muscle spasm

Ophthalmic: Blurred vision, xanthopsia

Otic: Deafness, tinnitus

Renal: Acute kidney injury, calcium nephrolithiasis (pediatric patients), interstitial nephritis (allergic) (Jennings 1986), nephrolithiasis (pediatric patients)

Miscellaneous: Fever

Source: Furosemide. In: Lexicomp Online, UpToDate, Waltham, MA. (Accessed November 20, 2020.)

Warning And Precautions

- If given in excessive amounts, furosemide can lead to profound diuresis, causing fluid and electrolyte depletion. Supervise therapy closely.
- Monitor fluid status and renal function to prevent oliguria, azotemia, and increases in BUN and creatinine.

Drug Interactions

May enhance the hypotensive effect of angiotensin-converting enzyme inhibitors.

Beta-2 adrenergic agonists may enhance the hypokalemic effect of loop diuretics, including furosemide.

Non-steroidal anti-inflammatory agents may diminish the effectiveness of loop diuretic.

Opioid agonists may enhance the toxic effects of diuretics, and diminish their therapeutic effectiveness.

