Diuretics
Diuretics are used with antihypertensives and to reduce edema, glaucoma, seizures, renal disease. They work by altering the reabsorption or excretion of electrolytes and alter fluid volume.

Loop diuretics: inhibit the reabsorption of sodium chloride in the proximal and distal convoluted tubules and the loop on henle. 3 site increase their effectiveness.

Thiazide Diuretics: inhibit reabsorption in the ascending portion of the loop of henle and early distal tubule. Excrete sodium, chloride, and h2O

Potassium Sparing Diuretics: reduce the excretion of potassium, block the reabsorption of sodium into the kidney. And thereby increasing sodium and h2O in the urine and reduces excretion of K+

Osmotic Diuretics: increase the density of the filtrate in the glomerulus preventing selective reabsorption of h2O and it passes as urine.

Carbonic anhydrase inhibitors: sulfonamides without bacteriostatic action, inhibit CAH enzyme thus results in excretion of Na+ K+ HC03 and H2O

Adverse Reactions

**Neuro:** dizziness, headache, lightheadedness, weakness, fatigue

**GI:** anorexia, nausea, vomiting

**Derm:** rash, photosensitivity

Extremity Parethiasis and flaccid muscles could indicate hypokalemia

Hyperkalemia is a risk with potassium sparing diuretics

Contraindications

Known hypersensitivity. Electrolyte imbalances, severe kidney or liver dysfunction Anuria.

Mannitol: active intra cranial bleeding except during crainiotomy

Potassium Sparing: Hyperkalemia

Precaution

Renal dysfunction

Thiazide and Loop: liver disease, lupus, diabetes, a cross sensitivity may occurs with thiazides and sulfonamides

Yellow die may cause allergic reactions or bronchial asthma. With Thiazides

Potassium Sparing: diabetes, liver disease, or gout

Nursing Diagnosis

Impaired urinary elimination: related to action of the diuretics

Risk for deficient fluid volume: related to excessive diuresis secondary to diuretic administration

Risk for injury: related to lightheadedness, dizziness, cardiac arrhythmia
INTERACTIONS

Carbonic anhydrase Inhibitors:
**Primidone**: decreased effectiveness of primidone

Loop Diuretics:
**Cisplatin/aminoglycosides**: increased risk of ototoxicity
**Anticoagulant/thrombotic**: increased risk of bleeding
**Digitalis**: increase risk of arrhythmia
**Lithium**: increased risk of lithium toxicity
**Hydantoins**: decreased diuretic effect
**Nsaid**: decreased Diuretics effect

Potassium Sparing diuretics
**Angiotensin converting enzyme/potassium supplement**: increased risk of hyperkalemia
**Nsaid/anticoagulants**: decreased diuretic effect

Thiazide Diuretics:
**Allopurpinol**: increased risk of hypersensitivity to allopurinol
**Anesthetics**: increased anesthetic effects
**Antineoplastic drugs**: extended leukopenia
**Antidiabetic drugs**: hyperglycemia

**Nursing alerts**
Do not stop the drugs abruptly unless you speak with the DR.
If GI upset occurs then take the med with food or milk
Take early in the morning
Do not reduce fluid intake
Avoid alchohol and non prescription drugs
Notify the healthcare provider if: muscle cramps, weakness, dizziness, diarrhea, restlessness, excessive thirst, general weakness, rapid pulse, increased heart rate or pulse, gi distress.
Weigh yourself weekly
Do not exceed the amount of potassium recommended

Loop Diuretics

**Bumetanide**: N/A
**Uses**: edema from HF, renal disease, acute pulmonary edema, cirrhosis
**Adverse Reactions**: electrolyte imbalance, hematologist changes, anorexia, nausea, vomiting, dizziness, rash, photosensitivity, orthostatic hypotension glycosuria

**Furosemide**: lasix
**Uses** same as bumatide plus hypertension
**Adverse Reactions**: same as bumetanide plus headache

**Torsemide**: Demadex
**Uses** same as bumetanide plus hypertension
**Adverse Reactions**: Same as bumetanide plus headache

Potassium Sparing

**Spironoalctone**: aldactone
**Uses**: hypertension, hypokalemia, edema due to HF, cirrhosis, renal disease, @ risk pts for hyperaldosteroneism.
**Adverse Reactions**: headache diarrhea, drowsiness, lethargy, hyperkalemia, cramping, gastritis, erectile dysfunction, gynecomastia
**Thiazide and related**

**Hydrochlorothiazide: microzide**  
*Uses:* hypertension, edema due to HF, cirrhosis, corticosteroid and estrogen therapy  
*Adverse Reactions:* orthostatic hypotension, dizziness, vertigo, lightheadedness, weakness, anorexia, gastric distress, nausea, diarrhea, constipation, hematologist changes, rash, photosensitivity, hyperglycemia, fluid and electrolyte imbalance, reduced libido.

**Metoalzone: zaroxolyn**  
*Uses:* same as HCTZ plus renal failure  
*Adverse Reactions:* same as hctz

**Carbonic anhydrase**

**Acetazolamide: diamox**  
*Uses:* open angle glaucoma, pre op lowers IOP, secondary glaucoma, edema due to HF, drug induced edema, centerephalic epilepsy  
*Adverse Reactions:* weakness, fatigue, anorexia, nausea, vomiting, rash, parenthesis, photo sensitivity

**Methazolamide:**  
*Uses:* Glaucoma  
*Adverse Reactions:* same as diamox

**Osmotic Diuretics**

**Glycerin:**  
*Uses:* glaucoma before and after surgery  
*Adverse Reactions:* headache, nausea, vomiting

**Mannitol: osmitrol**  
*Uses:* to promote diuresis in acute renal failure, reduction of IOP, TX of cerebral edema, irrigation in prostate surgery  
*Adverse Reactions:* edema, fluid and electrolyte imbalance, headache, blurred vision, nausea, vomiting, diarrhea, urinary retention

**Lifespan considerations**

Older adults are especially prone to fluid volume deficit and electrolyte imbalance dehydration may occur out of fear of incontinence  
Symptoms of fluid and electrolyte imbalance include dry mouth, thirst, weakness, lethargy, drowsiness, restlessness confusion, muscle pain or cramps, confusion, gastrointestinal disturbances, hypotension, oliguria, tachycardia, and seizures.