hydrochlorothiazide (hye-droe-klor-oh-thye-a-zide)
Microzide, Oretic, Urozide

Classification
Therapeutic: antihypertensives, diuretics
Pharmacologic: thiazide diuretics

Pregnancy Category B

Indications
Management of mild to moderate hypertension. Treatment of edema associated with HF, Renal dysfunction, Cirrhosis, Glucocorticoid therapy, Estrogen therapy.

Action
Increases excretion of sodium and water by inhibiting sodium reabsorption in the distal tubule. Promotes excretion of chloride, potassium, hydrogen, magnesium, phosphate, calcium and bicarbonate. May produce arteriolar dilation. Therapeutic Effects: Lowering of BP in hypertensive patients and diuresis with mobilization of edema.

Pharmacokinetics
Absorption: Rapidly absorbed after oral administration. Distribution: Distributed into extracellular space; crosses the placenta and enters breast milk. Metabolism and Excretion: Excreted mainly unchanged by the kidneys. Half-life: 6–15 hr.

TIME/ACTION PROFILE (diuretic effect)
ROUTE ONSET PEAK DURATION
PO† 2 hr 3–6 hr 6–12 hr
†Onset of antihypertensive effect is 3–4 days and does not become maximal for 7–14 days of dosing

Contraindications/Precautions
Contraindicated in: Hypersensitivity (cross-sensitivity with other thiazides or sulfonylureas may exist); Some products contain tartrazine and should be avoided in patients with known intolerance; Anuria; Lactation.

Use Cautiously in: Renal or hepatic impairment; OB; Juvenile or thrombocytopenia be seen in the newborn.

Adverse Reactions/Side Effects

Interactions
Drug-Drug: Additive hypotension with other antihypertensives, acute ingestion of alcohol, or nitrates. Additive hypokalemia with corticosteroids, amphotericin B, piperacillin, ticarcillin. The excretion of lithium. Cholestyramine or colestipol decreases absorption. Hypokalemia increases risk of digoxin toxicity. NSAIDs may decrease effectiveness.

Route/Dosage
When used as a diuretic in adults, generally given daily, but may be given every other day or 2–3 days/week.

PO (Adults): 12.5–100 mg/day in 1–2 doses (up to 200 mg/day; not to exceed 50 mg/day for hypertension, doses above 25 mg are associated with greater likelihood of electrolyte abnormalities).

PO (Children): 2 mg/kg in 2 divided doses (not to exceed 200 mg/day).

PO (Children <6 mo): 2 mg/kg/2 divided doses (not to exceed 200 mg/day).

PO (Children <6 mo): 1 mg/kg/2 divided doses (not to exceed 50 mg/day).

NURSING IMPLICATIONS
Assessment
• Monitor BP, intake, output, and daily weight and assess feet, legs, and sacral area for edema daily.
• Assess patient, especially diuretic-naive, for anorexia, nausea, vomiting, muscle cramps, paresthesia, and confusion. Notify health care professional if these signs of electrolyte imbalance occur. Patients taking digitalis glycosides are at risk of digitalis toxicity because of the potassium-depleting effect of the diuretic.
• If hypokalemia occurs, consideration may be given to potassium supplementation or decreasing dose of diuretic.

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

Hypertension:
- Monitor BP before and periodically throughout therapy.
- Measure frequency of prescription refills to determine compliance.

- May cause serum and urine glucose in diabetic patients.
- May cause serum bilirubin, calcium, creatinine, and uric acid, and serum magnesium, potassium, sodium, and urinary calcium concentrations.
- May cause serum cholesterol, low-density lipoprotein, and triglyceride concentrations.

Assessment of sulfonamide diuretics

- Monitor electrolytes (especially potassium), blood glucose, BUN, serum creatinine, and uric acid before and periodically during therapy.
- Lab Test Considerations:
- May cause serum and urine glucose in diabetic patients.
- May cause serum bilirubin, calcium, creatinine, and uric acid, and serum magnesium, potassium, sodium, and urinary calcium concentrations.
- May cause serum cholesterol, low-density lipoprotein, and triglyceride concentrations.

Potential Nursing Diagnoses

- Excess fluid volume (Indications)
- Risk for deficient fluid volume (Side Effects)
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

- Administer in the morning to prevent disruption of sleep cycle.
- Intermittent dose schedule may be used for continued control of edema.

- PO: May give with food or milk to minimize GI irritation. Tablets may be crushed and mixed with fluid to facilitate swallowing.

Patient/Family Teaching

- Instruct patient to take this medication at the same time each day. Take missed doses as soon as remembered but not just before next dose is due. Do not double doses.
- Instruct patient to monitor weight weekly and notify health care professional of significant changes.
- Caution patient to change positions slowly to minimize orthostatic hypotension.
- This may be potentiated by alcohol.
- Advise patient to use sunscreen and protective clothing to prevent photosensitivity reactions.

- Instruct patient to discuss dietary potassium requirements with health care professional.
- Instruct patient to notify health care professional of medication regimen before treatment or surgery.
- Advise patient to report rash, muscle weakness, cramps, nausea, vomiting, diarrhea, or chills to health care professional.
- Emphasize the importance of routine follow-up exams.

Hypertension:
- Advise patient to continue taking the medication even if feeling better. Medications control but do not cure hypertension.
- Encourage patient to comply with additional interventions for hypertension (weight reduction, low-sodium diet, regular exercise, smoking cessation, moderation of alcohol consumption, and stress management).
- Instruct patient and family to correct technique for monitoring usual BP.
- 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 Rx, OTC, or herbal products, especially cough or cold preparations.

Evaluation/Desired Outcomes

- Decrease in BP
- Decrease in edema

Why was this drug prescribed for your patient?