

# Antimicrobials

## Antibiotic

- A chemical substance produced by a microorganism that kills other microorganisms

## Antimicrobial

- A synthetic or natural substance that kills or inhibits growth of microorganisms

### Empiric Therapy

- Giving antibiotics that can best kill the suspected organism causing infection

### Prophylactic

- Using antibiotics to prevent infection. ex) before/after surgery

### Therapeutic

- A decrease in symptoms after antibiotics

### Sub-Therapeutic

- When Symptoms don't improve w/ antibiotics

### Superinfection

- Reinfection or a second infection after antibiotics. ex) c-diff, MRSA, fungal

## Assessment

- History of current infection
- Past antibiotic use
- Allergies
- Physical exam
- Medication history
- Psychosocial history
- Lab and diagnostic studies
- Side effects of medications

## Side Effects

- Nausea, Vomiting and diarrhea - HCP may also order probiotics if applicable
- Nephrotoxicity - Monitor 1&0 BUN + creatinine. Ensure hydration
- Ototoxicity - Report changes in hearing
- Hepatotoxicity - Monitor LFTs, assess for jaundice hepatomegaly + n/v
- Bleeding Disorders - Monitor PT/INR + give vit k per order
- Inactivation of oral contraceptives - Educate women to use alternative birth control
- Allergic reactions & anaphylaxis - Monitor closely for signs of a reaction or rash

## Planning & Implementation

- Ensure cultures are taken before therapy
- Give antibiotics on time and at their set increments to maintain blood levels
- Monitor labs + vitals
- Use CDC recommended isolation precautions
- Determine if needed to be given with or without meals
- Check if it may be given w/ antacids, magnesium, calcium or other vitamins

# Diuretics

All diuretics work by selectively excreting various electrolytes and water. Their intended action is to manage blood pressure, decrease edema d/t heart failure or chronic kidney disease

### Loop Diuretics

- Furosemide (Lasik)
- Bumetanide (Bumex)
- Torsemide (Demadex)

### Action

- Blocks reabsorption of sodium + chloride prevents reabsorption of water

### Purpose

- Used to rapidly remove fluid to treat conditions such as pulmonary edema, heart failure, and edema caused by liver/kidney disease or hypertension

### Interactions

- Antihypertensives - monitor closely for hypotension
- NSAIDs - Low blood flow to kidney which decreases diuretic effects

### Important Side Effects

- Important Side Effects
- Hypokalemia
- Ototoxicity
- Hypotension
- Dehydration
- Hyponatremia
- Hyperglycemia

### Nursing Considerations

- Obtain baseline vitals + electrolytes
- Weigh clients daily
- Admin furosemide 20 mg/min IV
- Replace K+ if it drops to < 3.5 mEG/L
- Instruct patient to report tinnitus
- Assess for decreased edema, weight loss, low BP, high urine output

### Thiazide Diuretics

- Hydrochlorothiazide (Microzide)
- Chlorothiazide (Diuril)
- Methyclothiazide (Enduron)

### Action

- Affects the early distal convoluted tubule blocks chloride + sodium reabsorption works when there is no renal impairment

### Purpose

- Control essential/primary hypertension reduce edema in mild - moderate heart failure + liver or kidney disease promote reabsorption of calcium

### Interactions

- Contraindicated in pregnancy d/t low blood V01. Shouldn't be given to patients with impaired renal function

### Important Side Effects

- Low K+ Hypokalemia
- Dehydration/ low Nat
- Hyperglycemia
- Hypomagnesemia

### Nursing Considerations

- Obtain baseline vitals + electrolytes
- Weigh clients daily
- Give w/ meals to avoid GI upset
- Replace electrolytes when needed
- Advise pt to rise slowly to minimize orthostatic hypotension
- Track input + output

### Potassium-Sparing Diuretics

- Spironolactone (aldactone)

### Action

- Blocks aldosterone which results in Na + H2O secretion

### Purpose

- Combined w/ 100p diuretics to low k+10ss
- Treats HF

### Important Side Effects

- Hyperkalemia
- Impotence
- Dysmenorrhea
- Drowsiness

### Nursing Considerations

- Obtain baseline vitals + electrolytes
- Weigh clients daily
- Check electrolytes before administering
- Monitor ECG
- Instruct pt to report GI upset, Excessive thirst,deepened voice + adhered LOC
- Treat hyperkalemia
- Monitor blood pressure

### Precautions

- ACE inhibitors high K +
- Don't give to pt's w/ severe kidney failure / anuria
- Use w/ caution in patient's w/ liver disease or acidosis
- Salt substitutes increase potassium levels

### Osmotic Diuretics

- Mannitol (osmitrol)

### Action

- increase serum osmolality and draw fluids into vascular and extravascular space

### Purpose

- Prevent kidney failure
- Decreases ICP and intraocular pressure

### Important Side Effects

- HF and pulmonary edema
- Electrolyte imbalances

### Nursing Considerations

- Use a filter needed to draw up IV
- Instruct patient to report Δ in LOC, headache and nausea - rebound and ICP
- Monitor BP, weight and ECG
- Track input and output