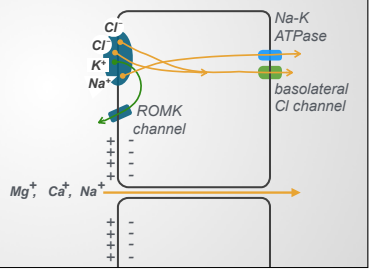
Diuretics

Loop diuretics

Sodium handling in the loop of Henle

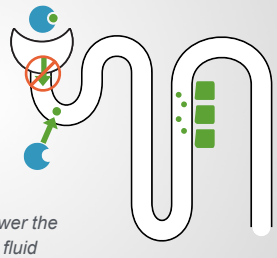
- *proximal tubule*
- ➡ *thick ascending limb of the loop of Henle*
- *Distal convoluted tubule*
- *Cortical collecting duct*



A closer look at loop diuretics

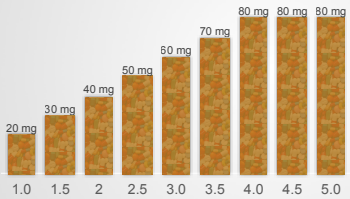
- ➡ Active in the tubular fluid
- ➡ Protein bound. Not filtered at the glomerulus
- ➡ Secreted by the proximal tubule.

Secretion is GFR dependent, the lower the GFR, the less diuretic in the tubular fluid

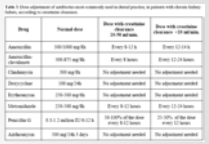


Serum Creatinine x 20

Starting dose of Lasix

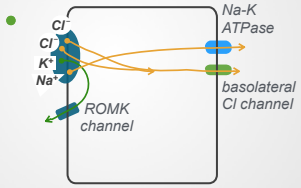


Serum Creatinine (mg/dL)



Usually we think of reducing the dose or frequency in renal failure…

A closer look at loop diuretics



A closer look at loop diuretics

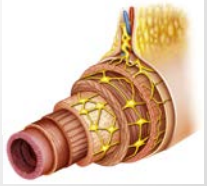
Increases renal excretion of:

- Sodium
- Potassium
- Hydrogen ions (causing metabolic alkalosis)
- Calcium
- Magnesium

Furosemide	Bumetanide	Torsemide
Lasix	Bumex	Demedex
bioavailability 10-100	bioavailability 80-90	bioavailability 80-100
IV Oral	IV Oral	IV Oral
half life 1.5-2.0 hours	half life 1 hour	half life 3-4 hours

Loop diuretic: bioavailability

In the ED he is given 40 mg of IV lasix and promptly begins making copious amounts of urine.



Loop diuretic: half-life

Bumetadine:
Short half-life
Quick onset of action

half life 1 hour

Torsemide:
Long half-life
Once daily dosing
Optimal for hypertension and outpatient CHF

half life 3-4 hours