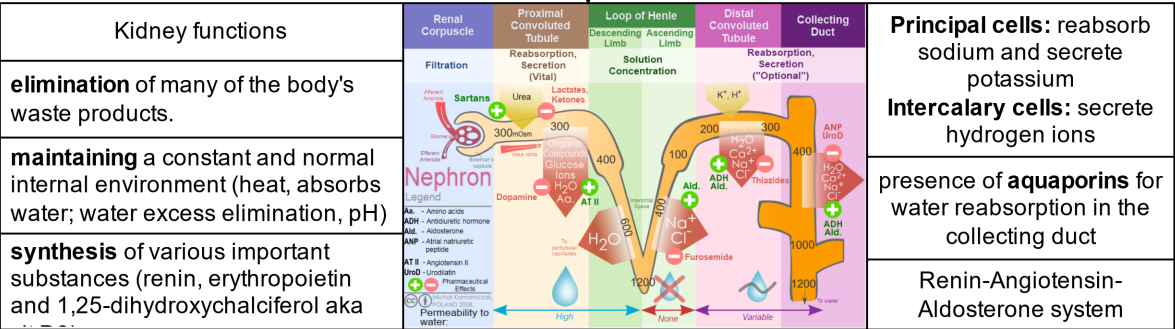


Interactions in pathologies of the genitourinary system



Diuretics

↓Na⁺ reabsorption and increase water excretion

prescribed for high blood pressure and oedemas

types

Loop diuretics

Furosemide, bumetanide, torasemide

sodium excretion: 15-25%

in the thick ascending portion → inhibit cotransporter Na⁺/K⁺/2Cl⁻

↑Na in the collecting duct → ↑secretion of K⁺ and H⁺ (metabolic alkalosis)

inhibition of Ca and Mg reabsorption and vasodilatation

not prescribed in severe renal failure

food and ginseng may reduce the effect

liquorice antagonistic effect (Na and H₂O retention, K excretion).

hypokalaemia, hyponatraemia, hypotension, hypovolaemia and metabolic alkalosis

Distal tube diuretics

thiazides: hydrochlorothiazide and **sulphonamides:** chlorthalidone and indapamide

sodium excretion: 5-10%.

inhibit Na⁺/Cl⁻ cotransporter → increase secretion of K⁺ and H⁺ in the collecting duct

decrease Ca excretion

maximum effect 4-6h after taking them

not prescribed in ↓K⁺ ↓Na⁺ and ↑Ca (worsen)

caution in DM, thiazides cause hyperglycaemia

better tolerated than loop diuretics but still high frequency of urination

interaction with liquorice due to antagonistic effect

prolonged treatment → hypokalaemia
hypokalaemia → toxicity of other drugs

Potassium sparing diuretics

Sodium channel inhibitors: amiloride and triamterene. **Aldosterone antagonists:** spironolactone, eplerenone.

sodium excretion: 2-3%.

act in the end portion distal tubule and collecting duct

Sodium channel inhibitors

block reabsorption of Na⁺ → lower secretion of K⁺ and H⁺

Aldosterone antagonists

no aldosterone = ↓Na⁺ reabsorption and ↓K⁺ and H⁺ secretion

in heart failure and hyperaldosteronism.

not prescribed with ACE inhibitors (hyperkalaemia), not in renal failure.

cause digestive problems, hyperkalaemia and hyponatraemia.

aldosterone antagonists: gynaecomastia, menstrual disorders and male sexual dysfunction.

potassium-rich foods → risk of hyperkalaemia

urinary incontinence

Involuntary urine leakage

parasympathetic nervous system innervates the bladder (controls contractility)

Types of incontinence:

motor type. inability to inhibit contraction in filling phase.
overstimulation of sensory afferent pathways of the bladder
overactive musculature
due to prostate problems and neurological lesions

Muscarinic receptor antagonists

Oxybutynin, solifenacin, tolterodine, fesoterodine

relax detrusor muscle

not in bowel or bladder outlet obstruction, not in glaucoma.

Interaction with grapefruit juice may cause toxicity.

Urinary antispasmodic

Mirabegron

bladder smooth muscle antispasmodic (beta-3 adrenergic receptor agonist)

Not in severe and uncontrolled hypertension.

may cause tachycardia and urinary tract infections.

erectile dysfunction

repeated inability to achieve or maintain an erection.

may be due to adverse effects of other medications

Phosphodiesterase inhibitors

Sildenafil, tadalafil, vardenafil.

inhibit the degradation of cGMP (role of phosphodiesterase)

increasing the vasodilator effects of NO

not to use in recurrent nitrate treatment

may cause dyspepsia and visual disturbances.

vardenafil interacts slightly with food (delayed absorption).

