

Types of side effect

- **Anti-cholinergic:** dilated pupils, dry mouth and skin, blurred vision, urinary retention, constipation
TCA, anti-histamines, hyoscine, atropine, anti-psychotics, PPI
- **Anti-histaminergic:** weight gain, sedation
TCA, anti-psychotics, anti-histamines
- **Anti-alpha adrenergic:** postural hypotension, sexual dysfunction
TCA, anti-psychotics
- **Anti-dopaminergic:** extrapyramidal SEs, hyperprolactinaemia (→galactorrhoea, oligomenorrhea, infertility) ± neuroleptic malignant syndrome, oculogyric crisis
Metoclopramide, anti-psychotics

Side effects to memorise

- **TB drugs**
 - R: orange tears/urine +hepatitis
 - I: neuropathy +hepatitis
 - P: - +hepatitis
 - E: optic neuritis
- **Anti-epileptics**
 - Phenytoin: toxicity (→ cerebellar syndrome), acne, coarse face, gum hypertrophy, hirsutism +inhibit COCP
 - Carbamazepine: rash, dizziness, hyponatraemia, hair thinning +inhibit COCP
 - Sodium valproate: tremor, weight gain, hair thinning +teratogenic
 - Lamotrigine: rash (SJS)
- **Anti-depressants**
 - SSRI (e.g. fluoxetine, citalopram, sertraline): nausea, low libido, withdrawal, insomnia, hyponatraemia
 - TCA (e.g. amitriptyline): [anti- muscarinic effects], [anti-histaminergic effects], [anti-alpha adrenergic effects], hyponatraemia (SIADH), deranged LFTs, jaundice
 - MOAI (e.g. selegiline): **Hypertension, Hepatocellular jaundice, Hyperthermia**
- **Anti-hypertensives**
 - ACEi: dry cough, postural hypotension, renal failure in RAS (check U&Es before and 2 weeks after start), angioedema of the tongue, hyperkalaemia, profound hypotension when started
 - Ca²⁺ blocker: ankle oedema, headache/flushing/dizziness, bradycardia
 - β-blocker: diabetes, impotence, bradycardia, low cardiac output, fatigue, cold hands and feet
 - α-blocker: [anti-alpha adrenergic effects]
- **Diuretics**
 - ALL: dehydration, hypotension, hyperuricaemia, hypokalaemia (except K⁺ sparing), hypomagnesaemia
 - Loop: hypocalcaemia (used in Tx of hypocalcaemia)
 - Thiazide (e.g. indapamide): hypercalcaemia
 - K⁺ sparing: hyperkalaemia, gynaecomastia
- **DMARDs**
 - Sulfasalazine: myelosuppression, oligospermia, hepatitis, rashes (SJS, erythema nodosum), renal problems, discoloured urine
 - Gold injections: nephritic syndrome/proteinuria, myelosuppression, erythroderma, thrombocytopenia
 - Penicillamine: nephritic syn/proteinuria, taste disturbance, myasthenia, lupus-like syndrome
 - Chloroquine: retinopathy, tinnitus
 - Methotrexate: hepato/pulmonary toxicity, myelosuppression, severe mucositis
 - TNF antagonists: infusion reactions (inc anaphalaxis), infections (inc TB reactivation)
 - Cyclophosphamide: haemorrhagic cystitis
- **Hypoglycaemics**
 - Insulin: hypoglycaemia, fat-hypertrophy at injection site, hypokalaemia (used in Tx hyperkalaemia)
 - Metformin: weight loss, lactic acidosis, metallic taste
 - Sulphonylureas (e.g. gliclazide): hypoglycaemia, weight gain
 - Thiazolidinediones (glitazones e.g. rosiglitazone): fluid retention (→HF, oedema), hepatotoxic, bone fractures
 - α-glucosidase inhibitors (e.g. acarbose): wind, diarrhoea, abdo pain
- **Contraception**
 - ALL: weight gain, acne, mood changes, headaches
 - COCP (e.g. microgynon): blood clots, breast CA, cervical CA
 - Progesterone preparations
 - POP (e.g. minipill): periods→stop/irregular/light/more frequent
 - Depot: periods→stop/irregular/longer, time for fertility to return, osteoporosis (>2 years consider, >5 years stop)
 - Implant: periods→stop/irregular/longer, insertion risks, expulsion

- Merena IUS: spotting in first 6 months, then periods→light/stop, insertion risks (infection in first 3 weeks, bleeding, perforation 1 in 1000, expulsion 5%, vasovagal 10%)
 - Copper IUD: periods may get heavier, insertion risks above
 - Diaphragm: cystitis
 - **Anti-psychotics**
 - ALL: [anti-dopaminergic effects], [anti- muscarinic effects], [anti-histaminergic effects], [anti-alpha adrenergic effects]
 - Clozapine: agranulocytosis
 - Chlorpromazine: cholestatic jaundice
 - Haloperidol: prolonged QT, interference with temperature regulation, hypotension
 - **Lithium:** toxicity (tremor/ataxia/dysarthria→coma, convulsions, hypotension), nausea & diarrhoea, hypothyroidism, nephrogenic diabetes insipidus
 - **Steroids:** diabetes, Cushing's appearance, psychosis, osteoporosis, hypokalaemia, hyperglycaemia, infections, leukocytosis
 - **Azothiaprine:** myelosuppression
 - **Cyclosporin:** tremor, chronic interstitial nephritis, hypertrichosis, gum hyperplasia, burning hands/feet
 - **L-Dopa:** nausea, red urine/other body fluids, postural hypotension, dyskinesias, on-off and wearing off effects
 - **PPI:** tinnitus, nausea/diarrhoea/constipation, headache
 - **Anti-arrhythmics**
 - Amiodarone: thyroiditis, pulmonary fibrosis, peripheral neuropathy, myopathy, blue-gray skin pigmentation/photosensitivity, hepatitis, metallic taste
 - Digoxin toxicity: xanthopia (yellow/orange tinge to vision), GI symptoms (anorexia/nausea/vomiting/diarrhoea), any arrhythmia
 - Adenosine: flushing, impending sense of doom

Drugs causing...

Electrolyte imbalances

- **Hypernatraemia:** sodium containing Abx/bicarbonate/fluids
- **Hyponatraemia:** Anti-depressants, diuretics, lithium, chlorpromazine, carbamazepine
- **Hyperkalaemia:** K+ sparing diuretics, ACE inhibitors, NSAIDs, trimethoprim, ciclosporin/tacrolimus
- **Hypokalaemia:** salbutamol (used in Tx for hyperkalaemia), insulin, diuretics (except K+ sparing), caffeine/theophylline
- **Hypercalcaemia:** thiazide diuretics
- **Hypocalcaemia:** loop diuretics, bisphosphonates, phenytoin

Organ toxicity

- **Hepatitis:** RIP (of RIPE) tuberculosis Abx, sodium valproate, methotrexate, methyl dopa, amiodarone, statins, paracetamol, phenytoin, ketoconazole, nitrofurantoin
- **Cholestasis:** carbamazepine, chlorpromazine, co-amoxiclav, erythromycin, sulphonylureas
- **Pulmonary toxicity/fibrosis:** bleomycin, amiodarone, methotrexate, cyclophosphamide, sulfasalazine/penicillamine/gold
- **Renal failure**
 - Interstitial nephritis: NSAIDs, penicillins/cephalosporins, calcineurin inhibitors (cyclosporin/tacrolimus)
 - Acute tubular necrosis: lithium, contrast, gentamicin, amphotericin
 - Precipitate renal artery stenosis: ACE inhibitors
 - Glomerular damage: gold, NSAIDs, penicillamine
- **Creatinine rise:** trimethoprim, cimetidine, corticosteroids, pyrimethamine, salicylates, vitamin D metabolites
- **Phototoxicity:** tetracyclines, terbinafine, chlorpromazine, amiodarone (→blue/gray discoloration), chemo (vincristine), ciprofloxacin, psoralens, retinoids, loop/thiazide diuretics, sulphonylureas, oral contraceptives
- **Hypothyroidism:** amiodarone, carbimazole, lithium, proflithiouracil, radio-iodine

Other reactions

- **Steven Jonson Syndrome/erythroderma:** sulphur based drugs (sulphonamides, sulfonylureas), anti-epileptics, gold/penicillin/allopurinol
- **Vasculitis:** allopurinol, penicillin, sulphonamides, thiazides, phenytoin
- **Agranulocytosis 4 C's:** Carbamazepine, Clozapine, Colchicine, Carbimazole
- **Gynaecomastia DISCO MTV:** Digoxin, Isoniazid, Spironolactone, Cimetidine, Oestrogens, Methyl dopa/metranidazole, TCAD, Verapamil
- **Neuropathy:** metronidazole, nitrofurantoin, isoniazid, vinca alkaloids, cisplatin, amiodarone, phenytoin
- **Megaloblastic anaemia:** methotrexate, phenytoin (decrease folate), ethanol
- **Dyskinesia:** dopamine-like (L-dopa, bromocriptine), dopamine-blockade (chlorpromazine, haloperidol, metoclopramide), SSRI
- **Clostridium difficile risk:** cephalosporins, clindamycin, ciprofloxacin, broad spectrum penicillins