Common side effects of drugs and how to manage those

What is side effect of a drug?

Side effects are unwanted symptoms produce by a drug while producing its therapeutic effect. Side effects are inevitable and unavoidable. Example- after taking metronidazole patient experience bitter taste, nausea, vomiting; those are side effects. Side effect always occurs in normal therapeutic dose. Example- a patient was prescribed ramipril 5 mg once daily for hypertension, after starting patient developed dry cough. Here dry cough is side effect of ramipril.

What is adverse effect of a drug?

Adverse effect is an unexpected medical problem that happens during treatment with a drug or other therapy. Adverse effects are undesirable and unpredictable, after adverse reaction patient needs to avoid that drug for lifelong. Adverse effect may result from therapeutic dose or inappropriately taken high dose (e.g. drug taken to commit suicide). Example-a patient is taking category-I anti tubercular drugs, after that he develops blurring of vision, this is probably due to retrobulbar neuritis caused by ethambutal. So, this is adverse effect, the patient should avoid ethambutal for lifelong period.

When to suspect drug side effect or adverse drug reaction?

If any unwanted effect (usually unrelated to the treating disease or it's complication) develops immediately after starting the drug (commonly within 7 days, but may be up to 12 weeks) then we should suspect this may be side effect of drug or adverse drug reaction. As for example if a patient is treated with oral iron, after taking iron the patient complaint of passes of hard stool, this is due to side effects of iron.

Common side effects of some drug and their management

Drugs	Common side effects	Management
Amoxicillin	Loose motion	Stop the drug. Use other group of antibiotic Correction of dehydration (if

		any)
Doxycycline	Nausea and vomiting (due to gastric irritation	Should take after meal
Azithromycin	Diarrhea or loose stool	Stop the drug. Use other group of antibiotic Correction of dehydration (if any)
Levofloxacin	Insomnia	Prescribe at morning
Metronidazole	Nausea, vomiting, bitter taste	Counseling, give antiemetic, if severe then stop the drug and use other group of antibiotic
Nitrofurantoin	Nausea, vomiting	Counseling, give antiemetic, if severe then stop the drug and use other group of antibiotic
Iron supplementation	Upper abdominal discomfort, nausea and vomiting (due to gastric irritation, constipation, black stool	Reduce the dose from TDS to BD or once daily, if not improve then use ferrous gluconate, if still not improve then use capsule form (less absorb), if still not improve then use IV iron.
Tramadol HCl	Vomiting and vertigo	Stop the drug Use other analgesic Give cinnarizine 15 mg TDS for 3 to 5 days. For prevention-tramadols should start at low dose e.g. 50

		mg once daily for 3 days then two times daily, its better not to use it three times daily. Cinnarizine 15 mg TDS for the initial 3 to 5 days reduce/prevention vomiting and vertigo.
Pregabaline	Vomiting and vertigo	Stop the drug Give cinnarizine 15 mg TDS for 3 to 5 days. For prevention-pregabaline should start at low dose e.g. 25 mg once daily. Cinnarizine 15 mg TDS for the initial 3 to 5 days reduce/prevention vomiting and vertigo.
ACEi	Dry cough	Stop the drug. Use other antihypertensive
ARB	Postural hypotension	Prescribe at bed time, if still persists then stop and use other antihypertensive
Beta blockers	Erectile dysfunction Bradycardia	Stop the drug Use other antihypertensive
CCB	Palpitation Edema	Stop the drug Use other antihypertensive (CCB plus olmesartan combination reduce

		development of edema)
Diuretic	Dryness of mouth Frequency of micturition Hyponatraemia (anorexia, nausea, vomiting, reduce level of consciousness) Hypokalaemia (weakness, muscle cramps)	Stop the drug Use potassium sparring diuretic if hypokalaemia Sodium and potassium replacement (if deficit)
Secretagogue	Weight gain Hypoglycemia	Educate the patient to identify hypoglycemia and treat promptly Timely food intake
Metformin	Abdominal bloating, bulky stool	Reassurance
Insulin	Weight gain Hypoglycemia	Educate the patient to identify hypoglycemia and treat promptly Timely food intake
Aspirin	Burning sensation of the upper abdomen and chest, nausea, bloating	Prescribe it after meal (if patient is high risk of PUD then co-prescribe with PPI). If side effects occur then stop aspirin and start clopidogrel.
Nitrates	Headache (due to cerebral vasodilatation)	Reduce the dose of nitrates Keep a nitrates free time (prescribe at morning and evening, spare at night)

Statin	Anorexia, nausea and vomiting, muscle pain (cramps) (due to hepatitis and myositis)	Stop the drug Check SGPT The drug may be started after SGPT become normal
Salbutamol	Tremor, palpitation	Stop oral use, prescribe inhaler or nebulizer
Theophylline	Tremor, palpitation	Reduce the dose, if still side effects occur then stop the drug and use other drug
Steroid inhaler	Oral candidiasis	Advice the patient to gargle after taking this inhaler Local antifungal drug (nystatin oral drop)
Steroid oral	Cushing syndrome (after prolong use)	Stop the drug gradually (sudden stop may cause adrenal insufficiency)
Bisphosphonates	Burning sensation of the chest (due to GERD)	Prescribe in empty stomach (for better absorption) and then the patient should not lie for up to 30 to 45 minutes.
MTX	Rash, hepatitis, bone marrow suppression, renal impairment	Follow up the patient with CBC, SGPT and S. creatinine monthly for 3 months then 3 monthly lifelong. If side effects occur then stop the drug. The drug may be started after

		recovery but should not be resumed if developed bone marrow suppression.
Sulfasalazine	Rash, hepatitis, bone marrow suppression, renal impairment	Follow up the patient with CBC, SGPT and S. creatinine monthly for 3 months then 3 monthly lifelong. If side effects occur then stop the drug. The drug may be restarted after recovery but should not be resumed if developed bone marrow suppression.
Leflunomide	Rash, hepatitis, bone marrow suppression, renal impairment	Follow up the patient with CBC, SGPT and S. creatinine monthly for 3 months then 3 monthly lifelong. If side effects occur then stop the drug. The drug may be started after recovery but should not be resumed if developed bone marrow suppression.
Baclofen	Increase sleep	Reduce dose or stop it
Flunarizine	Increase sleep	Reduce dose or stop it
Pizotifen	Increase sleep	Reduce dose or stop it
Rifampicin	Anorexia, nausea, abdominal	Give drugs with or after meal

	pain	
Rifampicin	Orange/Red urine, saliva and tear	Reassurance
Pyrazinamide	Anorexia, nausea, abdominal pain, joint pain	Give drugs with or after meal Give NSAID if joint pain
Isoniazide	Burning sensation	Give pyridoxine 100 mg/day
Rifampicin, isoniazide, pyrazinamide, ethambutal	Itching with minor/mild skin rash	Exclude skin diseases Give antihistamines
Rifampicin, Isoniazide, pyrazinamide, ethambutal	Itching with moderate to severe skin rash	Stop anti-TB drugs, identify the offending drug (Refer for expert opinion)
Rifampicin, Isoniazide, pyrazinamide	Jaundice	Stop anti-TB drugs Exclude other causes of hepatitis Supportive management AntiTB should be started when serum bilirubin and SGPT become normal
Most anti-TB drugs	Vomiting and confusion (suspect drug induced acute liver failure if jaundice present)	Stop all anti-TB drugs until jaundice resolves. Urgent liver function test. (Refer for expert opinion)
Ethambutal	Visual impairment	Stop & never use it

Drugs causes weight gain

1. Antidiabetic-secretegogues group e.g. glimipiride, gliclazide etc and insulin.

2. Antihypertensive- betablockers (e.g. metoprolol, atenolol, propanolol etc)

3. Antidepressants- TCAs include amitriptyline, nortriptyline, paroxetine, fluvoxamine, mirtazapine.

4. Antihistamines such as cetirizine, fexofenadine etc.

5. Antipsychotics e.g. olanzapine, risperidone, clozapine, haloperiodol, chlorpromazine, thioridazine.

6. Contraceptive- medroxyprogesterone.

7. Glucocorticoids (systemic use)

8. Anticonvulsant-valproic acid, topiramate, carbamazepine, gabapentin

9. Mood stabilizer-lithium

Drugs causes somnolence

1. Benzodiazepines and sedative-hypnotics

2. Antihistamine

3. Antiemetic

4. Antipsychotics and anticonvulsants

5. SSRI antidepressants

6. Antiparkinson medication

7. Muscle relaxants

Drugs causes sleeplessness

1. Alpha-adrenergic blocking agents

2. Corticosteroids

3. Cholinesterase inhibitors

4. Statins

5. Antibiotic-levofloxacin.

Drugs causes EPS

1. Typical antipsychotic drug e.g. haloperidol and fluphenazine

2. Antiemetic- metoclopramide

3. SSRI, SNRI and norepinephrine-dopamine reuptake inhibitors (NDRI) e.g. duloxetine, sertraline, escitalopram, fluoxetine and bupropion.

Common hepatotoxic drugs

1. Paracetamol

2. Rifampicin

3. Pyrazinamide

4. NSAID

5. Statin

6. DMARDs e.g. methotrexate, sulphasalazine, leflunomide etc.

Common nephrotoxic drugs

1. NSAID

2. DMARDs e.g. methotrexate, sulphasalazine, leflunomide etc.

3. Aminoglycoside antibiotics (e.g. gentamicin)

4. Antifungal e.g. amphotericin B

5. PPI

Common myotoxic drugs

1. Statin

2. Glucocorticoids

3. Alcohol

4. Colchicine

5. Zidovudine