CHEMOTHERAPY

ملاحظة مهمة:كل عائلة من الادوية رح تكون باللون الأزرق، وكل يلي بيتبعوها من الأدوية باللون الأسود هم عبارة عن أدوية وأمثلة بتنتمي لهالعيلة.

Drug family and its chemical feature	Notes about the drug
Sulphonamides Chemical features: sulfur is linked directly to benzene ring. Also, NH2 group is an essential group.	Almost obsolete nowadays because: 1.bacterial resistance 2.bacteristatic 3.toxicity:nausea,rashes,blood dyscrasia and precipitation in urinary tract and stone formation. *mechanism of action: structural analogs and competitive antagonist of PABA. (there is a picture in slide 12 lec2 explains that)
Cotrimoxazole–trimethoprime combination	*very effective fixed and still used combination. *no resistance *useful in: UTI,RTI,salmonella,pneumocystis pneumonia and opportunistic infection in a AIDS patient
Quinolones C.F: containing carboxylic acid moiety at position no.3 of the primary ring structure.	Interfere with cell divition in bacteria
Nalidixic acid	Very old urinary antiseptic
Norfloxacin	*used only in UTIs *3 day course
Flourinated 4–quinolones	*3 examples: 1.Gatifloxacin 2.moxifloxacin 3.ciprofloxacin:wide range of activity,even botulinum

	Expensive. Prophylaxis for meningitis. Cause: upset, epilepsy. *mechanism of action is in slides 18-22 in details. Now that they target bacterial DNA gyrase and topoisomerase
Nitrofurans *5-nitro-2-furaldehyde derivatives	*used in prophylaxis and treatment of microbial infection primarily in urinary tract. *mechanism of action: modify various bacterial macromolecules that affect a variety of biochemical process like: DNA/RNA synthesis or protein synthesis. *selectively toxic to microbial cells. *primarily active against gram negative bacteria and some susceptible gram positive bacteria. *develop of resistance is unknown, crossresistance is not reported→due to its mechanism of action. Clinical use: *treatment and long-term prophylaxis of lower UTIs caused by susceptible bacteria and prophylactically post intercourse in women with chronic UTIs. *Do NOT suppress bacteria *bactericidal/bacteriostatic effects are conc dependent→bactericidal at 100ug/ml conc Side effects: nausea and vomiting.
Methenamine **(hexamethylenetetramanine)**	*aromatic acid, administered ORALLY-as they are well absorbed from intestinal travt) as salt (mandelic and hippuric) which acidify the urine to generate formaldehyde. The lowering in ph urine is a bacteriostatic effect on some organism. *they are hydrolyzed at acidic ph<6, to liberate ammonia and active alkylating agent formaldehyde which denatures proteins and is bactericidal. *the inactive form distributed to all bodyfluids, and almost all methenamine moiety are excreted by into urine by 24 hour. *used primarily in long-term prophylactic or suppressivre of recurring UTIs→not a primary drug in therapy of acute infections. *it should be used to maintain sterile urine after appropriate antimicrobial agent have been employed to eradicate the infection.