

تفريغ فارما 3



المحاضرة: (2) Intro part
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لجان الترقيات

Advantages of drugs combination

1. To delay or avoid the development of resistance. → بعض البكتيريا اذا لیتعالج بنوع واحد یعمل (resistance)

(Ex. Tuberculosis) → السل

2. To broaden the spectrum of activity. (Mixed infection , severe unknown infection,) → لزيادة نطاق نشاط المضاد الحيوي ضد انواع عديدة من

3. To obtain potentiation (synergistic effect). → مفعول الدواء ثین معاً بزيادة من تأثیر الدواء

Ex. ① -B-lactams and aminoglycosides in endocarditis. Penicillin + Aminoglycosides

2 separate IV bolus injection ,with time interval to avoid interaction.

② - Co-trimoxazole.

(Penicillin) و (aminoglycosides)

بیغطوا بر ابرتن منفصلات مت

تخل (interaction).

(microorganism) في بعض الناس يكون عندهم

(mixed infection) يعني العدوى سببها اكثر من (pathogens)

أو مرض في حالة (empiric therapy).

Disadvantages of drugs combination

1. Concomitant administration of a second agent is usually bacteriostatic and may interfere with the action of the first drug that is bactericidal.
2. Suppression of normal flora, so give higher chance for opportunistic infection (superinfection).
3. Increased incidence of adverse reactions.
4. Highly cost

① (bacteriostatic) يتوقف عن نمو البكتيريا ← يتمتع تأثير (bactericidal) ، لأنه (Static) يقلل من النمو وبذلك ما في كمية كافية من (cidal) يتوصل للبكتيريا .

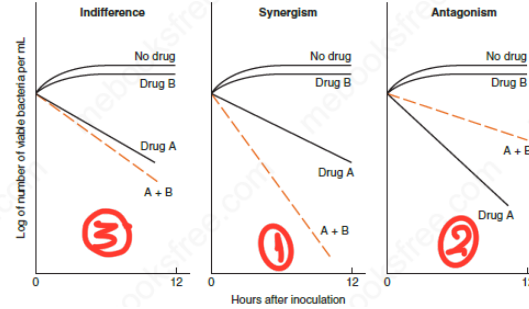
② (Superinfection) شخصاً عنه اصلاً (infection) ويؤخذ (antibiotic) ووضعه قائماً ، لكن لما بيضر هاد (antibiotic) من (GI) رح يعمل (killing) للـ (normal flora) . في بكتيريا ثانية موجودة بكمية معينة ، لما تخون (normal flora) ، البكتيريا الثانية رح يصير لها (overgrowth) وتعمل (infection) .

Antibiotics Combination

Synergistic: Effects of the two agents in combination together multiply their therapeutic effect or one agent enhances the action of another normally inactive against the target organism (for example, aminoglycosides with a penicillins)

• **Additive:** Effects of the two agents summate (for example, ciprofloxacin and metronidazole to treat aerobic and anaerobic gut flora).

• **Antagonistic:** Two agents interfere with each other (for example, tetracyclines and penicillin cannot be administered concurrently because of their chelation to one another).



Synergistic Effect

① إنه باستخدام (Combination) تزيد من فعالية الدواء ضد (Bacteria) مثل المثال ابي فوق (aminoglycosides + penicillins).
② ويمكن ان يكونا (inactive) مع بعض يعني دواء يكون فعال لما يغطيه مع دوا ثاني يقلل فعاليته.
③ او ممكن ما يبيانش اصلا.

Problems with antimicrobial agents

1. Drug resistance. (the major problem)

(if the maximal level of that antibiotic that can be tolerated by the host does not halt bacterial growth).

- Limitation of drug resistance:

1. Ensure that the indication, dose, duration are appropriate.
2. Restrict use of drug combination to appropriate situations (TB). اسد

2. Drug-drug interaction

3. Adverse effects.

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3. Adverse effects

a. Hypersensitivity; (not dose related)
e.g. Penicillin, cephalosporin.

b. Toxic effect (dose related)

High serum levels of certain antibiotics may cause Direct toxicity / Organ toxicity

e.g. Aminoglycosides (ototoxicity)

- Chloramphenicol (Aplastic anemia)

c. **Superinfections: (clostridium difficile-colitis)**

alterations of the growth of normal flora of intestine, genitourinary tracts. Respiratory tract

Appearance of a new infection while treating an original infection (multiply C.difficile).

How Effective is an Antibiotic

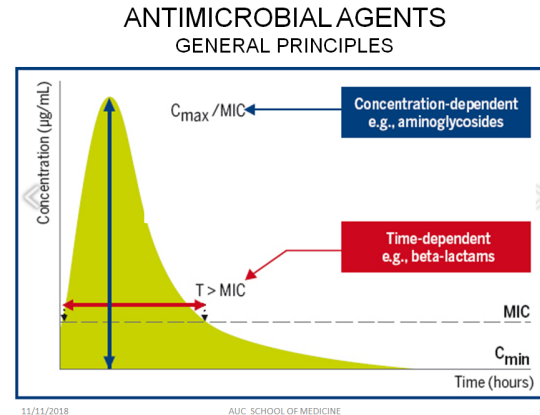
Concentration Dependent Killing

Efficacy determined by magnitude of serum concentration above MIC
e.g. Aminoglycosides, quinolones.

Time Dependent Killing

Efficacy determined by duration of time that serum concentrations exceed MIC

e.g. b-lactams, macrolides,
cotrimoxazole

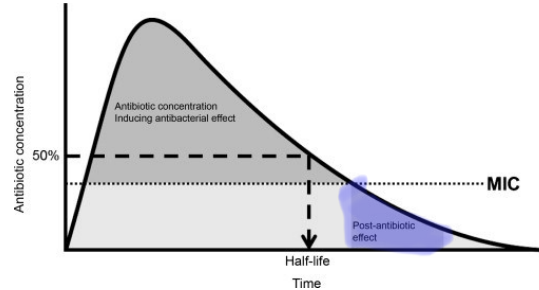


How Effective is an Antibiotic

- **Post-antibiotic effect (PAE):**

phenomenon of continued bacterial killing even though serum concentrations have fallen below the minimum inhibitory concentration (MIC).

- Examples: ~~Aminoglycosides~~ and Fluoroquinolones.



هون يعني تأثير الادوية بضل شغال حتى لو تركيزه اقل من (MIC).

The End