مقدمة الكتاب

زملائي الأعزاء...

فكرة هذا الكتاب المهمة بما مكان مميز جداً كم احمد الله كثيراً إن جعلني سبياً في يوم من الأيام كي يستمر هذا المكان اقصد بنك الدواء المجاني بها خربة ليست بالقليلة تلك التي يكتسبها الطبيب من وقته بصيدلية لتتعلم الأسماء التجارية والتعرف على أسعار الأدوية كي يتعلم كيف يكتب الدواء المناسب بالأسم المناسب بالجرعة المناسبة بالسعر المناسب للمريض بالطبع وما أعظم أن تنتمى هذه المعرفة وكون مقترنة بثواب أعظم من الله عز وجل في مساعدة المرضى كما في بنك الدواء المجاني هذا الكتاب حاولنا فيه جاهداً وقدر استطاعنا تجميع كل ما يخص الأدوية الأشهر استناداً إلى معلومات بدون حشو أو تعقيدات واستخدامه فيه أسلوب حراري مبسط مع تزويده ببعض الطرق العلاج المتفق عليها عالمياً لأشهر الأمراض وهو يعتبر بداية مبسطة لدخول عالم الأدوية والتعامل معها بطريقة مبسطة بكل سر内衣 ان ينال هذا العمل اعجابكم وان يتفيدوا من الاستفادة الكاملة.

وفي نهاية اتوجه بالشكر للله عز وجل الذي أعانني على اتمام هذا العمل واسأل الله ان يتقبله مني خالصاً لوجه الكريم.. كما لا انسى ابداً كل من ساهم في هذا العمل من قريب او من بعيد اسأل الله ان يقبلهم جميعاً خيراً

الثواب

محمد خليلي عبدالمعال

1 أكتوبر 2013
ABOUT US

ما هو بنك الدواء المجاني؟

- هو مشروع تطوعي لا يهدف إلى الربح المادي وإنما يهدف إلى توفير الدواء للمحتاجين لغير القادرين من مرضى مستشفى الباطنة وبعض الأقسام الأخرى بمستشفى قصر العيني.
- ويعتبر بنك الدواء المجاني في مصادر الأدوية على تبرعات الأدوية سواء من الأطباء أو غيرهم من يعرفون بنشاط البنك وبعض الجمعيات الخيرية.
- يقوم بإدارة هذا المشروع بعض المتطوعين من أطباء الامتياز كل عام ويعاونهم طلبة كلية طب قصر العيني ومنطقوين آخرين من داخل وخارج المجلان الطبي.

قصة بنك الدواء المجاني:

- بدأ بنك الدواء المجاني في ديسمبر 2004 بفكرة من طبيبة تدعى شيرين.
- كانت البداية بسيطة بكمية أدوية قليلة في مستشفى الباطنة.
- ومع الوقت تطورت الفكرة وتطورت معها عدد المتطوعين المشاركون وكمية الأدوية المتاحة.
- أصبح الآن بنك الدواء المجاني أفضل لكيان متخصص في خدمة المرضى خدمة مجانية بكفاءة عالية.

المستفيدين من الخدمة:

- يخدم بنك الدواء المجاني يوميا ما بين 70 إلى100 مريض على النحو التالي:
- المرضى المحجوزين لتلقي العلاج بالادوية بمستشفى الإماراط الباطنة.
- مرضى مستشفى الإماراط الباطنة.
- مرضى وحدة الملك فهد لأمراض الكلى.
- مرضى العادات الخارجية بقصر العيني.
- بعض المبتكرات يتم إعطاؤها لعيادات النساء والأطفال والذكورة والنفسية والرعاية.
- يتم تجهيز بعض القوافل الطبية بالأدوية اللازمة.

مصادر الأدوية:

- الأطباء سواء بقصر العيني أو خارجه.
- طلبة كلية الطب والصيدلة.
- الممرضات والعمالة بقصر العيني.
- العادات المجانية من شركات الادوية ومندوباتها.
- بعض الجمعيات الخيرية.
- الأفراد الذين يعرفون عن المشروع من خلال فريق الدعاية لدينا.

We're Searching for Volunteers
ايازات بنك الدواء المجاني:
1. تقديم الخدمة استمرار دون انقطاع وعلى مدى 8 سنوات
2. خدمة قطاع كبير من المرضى بكفاءة كما تم ذكره سابقاً
3. تجهيز الفوائد الطبية الخيرية
4. تقديم مثال رائع للعمل التطوعي المتكامل
5. نشر الفكرة في أماكن عديدة داخل مصر وخارجها

أياز تشاركنا:
1. الدعاء لهذا المشروع والقائمين عليه
2. تبرعات الأدوية سواء المستعملة أو بشراء الأدوية التي يحتاجها بنك الدواء المجاني
3. بوقت ممكن تشارك سواء في صرف الأدوية أو أيام الفرز للادوية وغيرها من النشاطات الصيدلية
4. بالفكر لتطوير المكان وتمييزه
5. بنشر الفكرة وعمل الدعاء لها

هستفيد أي من مشاركك:
1. ثواب عظيم بذل الله لمساعدة المحتاجين وغيرهم من النوايا التي ممكن نستحضرها ونؤجر بها أن شاء الله
2. تستفيد من التدريب الذي يتم أعطاوهما للمتطوعين الجدد
3. معرفة الأساسي التجارية واسعار الأدوية وشكل الأدوية وكل المعلومات عنها
4. تعرف على كيفية قراءة الروشتات والتعامل معها
5. علاقات قوية وتميزة لمهاراتك العملية والذنوبية ومهاراتك في التواصل مع المرضى والتمريض والعمل ومع زملائك في العمل
6. عمل صنادات مع أفراد كل ما يجمعهم هو حب الخير والعمل لوجه الله تعالى

أياز تتواصل معنا:
1. عن طريق التليفون 01129222159
2. عن طريق صفحتنا على الفيسبوك
Free Drug Bank

تقبل الله منا ومنكم صالح الأعمال
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Hints On Anti-Microbial

- Bacterium
- Virus
- Protozoan
- Fungus
- Helminth
المضادات الحيوية جزء مهم جدا جدا جدا للطبيب وفي اثناء ممارستك للطب هتلاقي ان اكتر من نصف الروشتات اللي هتكتبها لازم يكون فيها مضاد حيوي وزيادة معلوماتك عن المضادات الحيوية هتعرف كل مجموعة تستخدم امي وازي ولمدة قد ايه استخدام المضادات الحيوية لازم يكون بحذر شديد يعني لازم استخدم المضاد الحيوي المناسب للعين المناسب وده هنفوشه في اخر الجزة

How to choose antibiotic

لازم ننبه على العيان انه يكمل كورس المضاد الحيوي للاخر حتى لو شعر بتحسن لانه بيعرض العيان للantibiotic resistance كلمة وهي لك تدي مضاد حيوي لعين من غير culture and sensitivity وهي بيكون معروف فيها نوع الcommon causative organism والشي ييده باعذرية اعمال مزرعة ولكن لما العيان ما استجاب بعد ما مشى على كورس العلاج صح لازم مزرعة زي ملا ال1st line of antibiotic therapy ومن ناحية ثانية مش داموا الempirical ومن ناحية ثانية مثلا معايضنا نبناها على مزرعة لأهم من ناحية غالبين tienam زي ملا الempirical ودي معايا مضاد الحيوي ده بيغطي اي نوع من انواع البكتريا المعروفة وده بحليانا نقول ايه هي اشهر انواع البكتريا

Spectrum:

1. G +ve:
   e.g. streptococci, pneumococci, Staphylococci وطالما قلت على مضاد حيوي ان هو بيغطي الG +ve لازم اعترف هو antistaph ولا لا

2. G –ve:
   e.g. E. coli, klebsiella, Pseudomonas وطالما قلت على مضاد حيوي ان هو بيغطي الG -ve لازم اعترف هو antipseudamonas ولا لا

3. Atypical:
   e.g. mycoplasma, Chlamydia, campylobacter

وانيانوا انواع اخرى يتشغل علرو ال penicillin & cephalosporins وفي مضادات حيوية يتشغل على ال cell wall وفي انواع اخرى ليها طريقة عمل مختلفة هندراها باعيون quinolones, marolides, aminoglucosides ودي ال cell synthesiscation

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FDB GUIDE [Part 2]

Cell Wall Construction
- Bacitracin
- β-lactams
- Fosfomycin
- Glycopeptides

Structure and Function of the Cell Membrane
- Colistin
- Polymyxin B

Folic Acid Synthesis
- Trimethoprim
- Sulfonamides

PABA = para-aminobenzoic acid
DHF = Dihydrofolate
THF = Tetrahydrofolate

THF

DHF

PABA

DNA

RNA

Protein

Structure and Function of DNA
- Quinolones
- Nitrofurantoin
- Nitrimidazole

Rifampin

Protein Synthesis
- Aminoglycosides
- Lincosamide
- Macrolides
- Tetracyclines

Cell Wall

Cell Membrane

Bacteria Cell
I. **Penicillin:**

- Discovered in 1928 by Alexander Fleming while he was doing culture to penicillium rubens >> he found exudation of substance with antibiotic properties
- The 1st discovered family of antibiotics and was used for wounds and skin infections
- Act on bacterial cell wall >> inhibiting its synthesis
- Contain 5 subgroups:
  1. **Natural penicillin:**
     - Cover G +ve bacteria but not antistaph
     - Acid sensitive so no oral form (except ospen)
     - Penicillinase sensitive so not antistaph
     - Short duration of action so can be taken every 6 hours
     - Unstable
     - Members:
       - **Benzathine penicillin** (long acting penicillin)
         - **Trade names:** retarpen, Depopen, … etc
         - **Vial contains:** 1,200,000 IU
         - **Dose:** one vial every 2-3 weeks
         - **Used in prophylaxis and ttt of RF**
         - **Very Painful and may cause severe allergy**
         - لازم تعمل اختبار حساسية مع كل حقنة وبيتاخد معاه مخدر موضعي عسان الألم الجامد للسلامة البنسلين طويل المفعول بيساء استخدامه بمعنى أن أي طفل بيجي يشتكي من الالام وقال رجلي يروح الدكتور مديله بنسلين طويل المفعول على طول وده مش صح طبعا لان تشخيص الحمى الروماتيزمية لازم له شروط معينة
         - **RF = evidence of recent streptococcal infection (ASO rising titre or +ve throat culture) + 2 major criteria or 1 major with 2 minor**
         - واخيرا للتأكيد مش اي طفل بيشتكي باللوز ووجع في رجله ياخد بنسلين طويل مفعول

> [Photo of Alexander Fleming]
b. Penicillin G:
   - **Trade names**: penicillin G
   - Vial contains 1,000,000 IU
   - **Dose**: every 6 hours
   - Can cross BBB so can be used in meningitis

c. Penicillin V:
   - **Trade names**: ospen 1g, 1.5g
   - The oral form of natural penicillins
   - **Dose**: every 6-8 hrs
   - One of the good medications in ttt of strept pharyngitis and tonsillitis

d. Procaine penicillin:
   - Not widely used now due to severe allergic reaction and severe pain at the site of injection

2. Narrow spectrum (Penicillinase resistant):
   - They are anti-staph only
   - Not used alone but in combination with other broad spectrum penicillins
   - Members: Cloxacillin, dicloxacillin, flucloxacillin

3. Broad spectrum penicillins:
   - **spectrum**:
     a. cover G +ve mainly but not anti staph
     b. cover some G –ve
   - not acid sensitive so can be taken orally
   - members:
     a. **Ampicillin**:
        - Interfere with the final step of cell wall synthesis
        - It is weak antibiotic
        - Safe during pregnancy and lactation
        - **Trade names**: ampicillin, epicocillin 250,500mg
           - ما بقاش حد يستخدمه كنبيبيير لأنه بقى ضعيف جدا وفي حاجات احسن منه بكثر
     b. **Amoxicillin**:
        - Strong bactericidal broad spectrum antibiotic
        - **Trade names**: amoxil, ibiamox, Emox, biomox 250,500mg
- Although they are broad spectrum G+ve, they are not antistaph. So they added substances which is penicillinase inhibitor e.g. (sulbactam & clavulonic acid) & therefore these members became broad spectrum antistaph
  a. Ampicillin + sulbactam: unasyn, unictam, …etc
  b. Amoxicillin + calv. a.: Augmentin, Hibiotic, curam, ….etc

4. Extended Spectrum Penicillins:
   - They are recent types of penicillins that cover not only the G +ve including staph but also cover G-ve including Pseudomonas
   - Members:
     a. Azetreonam: Azactam
     b. Pipracillin: pipril
     c. Pipracillin + tazobactam: tazocin
     d. Meropenem + cilastatin: Tienam
   - They are strong and effective but they are very expensive

5. Combinations (narrow spectrum + broad spectrum):
   - They take advantage of both narrow antistaph and broad members
     a. Ampicillin + flucloxacillin: Ampiflux
     b. Amoxicillin + flucloxacillin: flumox…..etc
II. Cephalosporins:

- They are structurally closely related to penicillin so any patient has allergy to penicillin shouldn't take cephalosporin.
- They have act like penicillins on the bacterial cell wall inhibiting its synthesis.
- As we proceed from the 1st generation to the higher generations the spectrum of the G-ve organisms increases.
- Recently they’re classified into 5 generations:
  1. 1st generation:
     - they cover most of G+ve organisms but not antistaph.
     - They are 3 main members:
       a. Cephradine:
          - The weakest and not widely used.
          - *Trade names:* Cephradine, velosef, ….etc 250, 500, 1000mg

       b. Cephalexin:
          - *Trade names:* Cephalexin, ceporex, …etc 250, 500, 1000mg

       c. Cephadroxil:
          - The strongest member
          - Has antistaph properties
          - Long duration of action so can be administered every 12hrs
          - *Trade names:* Duricef, curisafe, ibidroxil, …etc 250, 500, 1000mg
2. **2nd generation:**
- Cover both G+ve and G-ve organisms
- They are not antistaph or anti-pseudomonal
- They are usually used in closed space infections e.g otitis media, sinusitis
- They are 2 main members:
  a. Cefuroxime:
     - Taken every 12 hrs
     - **Trade names:**
       - Zinnat, zinacef, ..etc 250, 500mg
  b. Cefaclor:
     - Taken every 8 hrs:
     - **Trade names:**
       - Bacticlor, cefaclor, …etc 250, 500mg

3. **3rd generation:**
- Cover mainly G-ve organisms but it covers also many G+ve organisms
- Penicillinase resistant so they are antistaph
- They are effective as antipseudomonal agents
- They are subdivided into 2 categories:
  a. **Parenteral:**
     - Cefotaxime:
       - Taken every 12hrs
       - It is widely used
       - **Trade names:**
         - Cefotax, claforan, …etc 250, 500, 1000mg
     - Ceftriaxone:
       - It is widely used as it is safe antibiotic
       - Taken once daily
       - Not taken with calcium in the same line as it may lead to fatal lung and kidney precipitations
       - It is painful i.e. at the site of injection so there are 2 forms
         - Either IM with lidocaine or IV with distilled water
         - **Trade names:**
           - Rocephin, ceftriaxone, …etc 250, 500, 1000mg
Cefoperazone:
- **Trade names:**
  - Cefobid, cefoperazone, 500, 1000, 2000mg
- Testicular atrophy

Ceftazidim:
- Most effective against pseudomonas
- Most expensive in this group
- **Trade names:**
  - Fortum, cefzim, …etc 250, 500, 1000mg

b. **Oral:**
They are effective against G+ve and G-ve organisms
They are not antistaph not antipseudomonal
Effective in otitis media, sinusitis, UTI, tonsillopharyngitis, acute bronchitis, …etc
- Cefixime:
  - Daily dose 400mg either single or 2 divided doses
  - **Trade names:**
    - Ximacef, …etc 200, 400mg
- Cefpodoxime:
  - Daily dose is 100mg on 2 divided doses
  - **Trade names:**
    - Orelax, …etc 100mg

4. **4th generation:**
- Very strong generation of cephalosporins
- Cover most of G+ve organisms as the first Generation (antistaph)
- Cover most of G-ve organisms including pseudomonas (more effective than the 3rd generation)
- Members are:
  a. Cefepime:
    - **Trade names:** Maxipime, …etc 500, 1000mg
  b. Cefpirome:
    - **Trade names:** cefrom 1, 2gm

5. **5th generation:** (although this term is not accepted universally)
- E.g. ceftobiprole
- Has powerful antipseudomonal effect
- Less susceptible to development of resistance
III. **Aminoglycosides:**
- Mechanism of action: inhibit bacterial protein synthesis
- Spectrum: effective against wide range of G-ve organisms including pseudomonas but they’ve weak antistaph effect
- Used in septicemia
- Can’t cross BBB (amikacin can be injected intrathecal in meningitis)
- Can’t cross mucosal barrier so all are parenteral except neomycin which is oral
- Shouldn’t be used more than 5-7 weeks as they may cause ototoxicity (irreversible) & nephrotoxicity (reversible)
- Members are:
  1. Gentamicin:
     - Dose: 80mg tds
     - Trade names: garamycin, epigent, …etc 20, 40, 80mg

  2. Tobramycin:
     - Like gentamicin but More safe than other aminoglycosides
     - Trade names: tobcin, tobracin, …etc 20, 40, 80mg

  3. Amikacin:
     - Used for G-ve organisms resistant to garamicin
     - can be injected intrathecal in meningitis
     - There is loss of activity between amikacin and penicillins and cephalosporins
     - There is incompatibility with heparin, HCT, phenytoin, nitrofurantoin, warfarin, Vitamin B complex and vitamin C
     - Dose: 15mg/kg/day
     - Trade names: amikin, amikacin, …etc 100, 250, 500mg

  4. Neomycin:
     - The only oral preparation of aminoglycosides
     - Aminoglycosides can’t cross the mucosal barrier!!
     - oral
     - Used in hepatic encephalopathy 4-12gm in 4 divided doses
     - Used also in colonic preparation before colorectal surgery (used for 24hr and not exceeding 72hrs)

**strong antipseudomonal and strong against G-ve organisms**
IV. Macrolides:

- **Mechanism of action:**
  - Inhibit bacterial protein synthesis
  - They bind reversibly to the P site on the subunit 50S of the bacterial ribosome
  - They tend to accumulate in the leucocytes and are, therefore, transported into the site of infection

- **Spectrum:**
  - They cover the G+ve organisms
  - They’re effective against penicillinase producing bacteria e.g. staph
  - Their spectrum is slightly wider than penicillin so they’re common substitute for patients with penicillin allergy
  - They are effective against atypical bacteria e.g. Chlamydia, mycoplasma, …etc

- **Medical Uses:**
  - Respiratory tract infections (drug of choice in tonsillitis then 1st generation cephalosporins)
  - Skin and soft tissue infections
  - Otitis media, UTI

- **Side effects:**
  - Inhibition of the cytochrome P450 system so can make
    1. Myopathy if used with statins
    2. Prolongation of the QT segment leading to torsade de pointes
  - These side effects are common with erythromycin and to a lesser extent with clarithromycin and the safest is azithromycin (doesn’t inhibit the cytochrome P450 system)

- **Members:**
  1. Erythromycin:
     Erythrocin, erythromycin, …etc
  2. Azithromycin:
     - Unique and has no effect on the cytochrome P450 system so it is safe
     - more effective than erythromycin and cover many G-ve organisms specially on H.influenza
     - used widely in practice
     - Dose: 500mg/cap. One cap 1hr. before meal or 2 hours after meal once daily for 3 successive days

Trade names:
Zisrocin, xithrone,zithromax, …etc
3. Clarithromycin:
   - Used also for ttt of H. pylori as a part of the triple therapy with tinidazole and omeprazole
   - Trade names: Klacid, …etc

4. Clindamycin:
   - Strong against G+ve organisms including staph and anaerobic bacteria
   - Trade names: Dalacin-C

5. Spiramycin:
   - In addition of common uses of macrolides it is used for ttt of
     a. Toxoplasmosis during pregnancy
     b. Dental infections
   - Dose: 3 million i.u. / 12hrs
   - Trade names: spirex, unispira 1.5, 3 million i.u.
   - By addition of metronodazole (commercially known spirazole) can be used in ttt of H. pylori

Recently there is new group of macrolides i.e. ketolides which are more potent and effective on macrolides resistant bacteria. They’ve also 2 binding sites for the ribosomal subunits. Also there’re new generations of ketolides called flouro-ketolides e.g. solithromycin which has 3 binding sites for the ribosomal subunits

**Ketolides: Mechanism of Action**

Ketolides tightly bind to two sites on ribosomal RNA

- Ketolides block bacterial protein synthesis
- Ketolides were engineered to overcome resistance to Biaxin and Zithromax
V. Quinolones:

- **Mechanism of action:**
  - They are bactericidal as they inhibit DNA gyrase enzyme which is required for DNA replication, transcription, repair and recombination.

- **Spectrum:**
  - Cover mainly G–ve organisms including pseudomonas.
  - Cover some G+ve organisms (i.e. levofloxacin is excellent against G+ve).
  - They’re effective against atypical bacteria e.g. Chlamydia (i.e. ofloxacin is effective against atypical bacteria).

- **Medical uses:**
  - They’re the 1st drug of choice in UTI.
  - They’re not the 1st line antibiotics in USA and used in hospital acquired infections.
  - Some members are used also in respiratory tract infections e.g. levofloxacin.

- **Contraindication:**
  - Extremities of age either below 12 years old or above 55 years old as they cause premature closure of epiphysis and bone erosions.
  - Pregnancy and lactation

- **Members:**
  - Quinolones are classified according to the structure either fluorinated or not into 2 generations i.e. 1st generation is not fluorinated and 2nd generation is fluorinated (fluoroquinolones).
  - There is controversy about how to classify the generations.
  - Addition of fluorine to the quinolones decrease the incidence of resistance so fluoroquinolones are widely used.

1. **Ciprofloxacin:**
   - It is widely used in practice.
   - **Trade names:** Ciprofar, ciprobay, ciprocin, etc 250, 500, 750mg.
   - Dose: bid for 7–14 days.

2. **Levofloxacin:**
   - Excellent against G+ve in addition to its spectrum against G–ve like all quinolones.
   - **Trade names:** tavanic, tavacin, etc 250, 500, 750mg.
   - Dose: once daily for 7–14 days.
3. Norfloxacin:
   - **Trade names:** Epinor 400mg
   - Dose: bid for 7 days

4. Ofloxacin:
   - Used also in ENT infections and skin&soft tissue infections caused by G-ve
   - **Trade names:** ofloxin, tarivid 200mg

5. Lomefloxacin:
   - Used in respiratory tract infections and UTI
   - Long acting so used once daily for 5-10 days
   - **Trade names:** lomeflox 400mg

6. Nalidixic acid:
   - The oldest member of quinolones
   - Used in UTI
   - **Trade names:** nalidram 500mg
   - Dose: 500-1000mg/6hrs for 7-10 days

VI. **Sulphamethoxazole + Trimethoprim:**
   - **Mechanism of action:**
     - SMX prevent the 1\textsuperscript{st} step in bacterial folic acid synthesis
     - Trimethoprim prevent the 2\textsuperscript{nd} step in bacterial folic acid synthesis
     - Both of them when combined in one drug produce potent bactericidal effect
   - **Uses:**
     - Respiratory tract infections
     - UTI
     - Bacterial GE
     - Skin and soft tissue infections
   - **Precautions:**
     - Adequate fluid intake to prevent crystalluria
     - Stopped immediately if rash appeared due to severe allergic reaction
     - Used cautiously in patients with renal & hepatic impairment and contraindicated with severe impairment or with blood disorders
   - **Trade names:** Sutrim, septrin, sutaprim D.S.(i.e. double strength)
VII. Glycopeptides:
- Mechanism of action: inhibit the synthesis of cell walls in susceptible microbes by inhibiting peptidoglycan synthesis.
- Members:
  1. Vancomycin:
     - Used in ttt of septicemia, lower respiratory tract infections, MRSA
     - S.E. is ototoxicity and nephrotoxicity
     - Trade names: vancocin, vancomix, ...etc 500mg
  2. Teicoplanin:
     - Used as alternative to vancomycin in the ttt of serious G+ve infections where other drugs can’t be used e.g. Infective endocarditis, peritonitis, ...etc
     - Trade name: targocid 200,400mg

VIII. Linezolid: (averzolid 600mg cap)
- Used in ttt of G+ve infections of the skin and respiratory tract including VRSA & MRSA
- It is reversible MAO-I so potentiate the action of pseudoephedrine and SSRI
- من اقوى واحدث المضادات الحيوية وشديد تأثيره ولازمة لازم يتاخد بمزرعة طبيعا

IX. Chloramphenicol:
- It’s broad spectrum antibiotic that interfere with bacterial protein synthesis & usually bacteriostatic
- S.E.: BM depression and aplastic anemia
- Trade names: mephenicol 250mg

X. Tetracycline:
- Mechanism of action: inhibit bacterial protein synthesis
- Spectrum: effective against atypical bacteria and many aerobic & anaerobic bacteria
- Uses: treatment of acne, trachoma of the eye, mycoplasma, Chlamydia
- Important member is Doxycycline:
  - Used in respiratory tract infections and UTI and skin infections
  - Dose is 100mg start with bid in the first day then once daily or may be continued as bid according to the severity of the infection
  - Trade names: Doxy M.R. 100mg
- They cause permanent discoloration of the teeth if used in children below 8 years
HOW TO CHOOSE ANTIBIOTIC

1. Common causative organism:
   - In many cases, the causative bacteria are usually G+ve and therefore the antibiotic should be a strong one against this type of bacteria. For example, tonsillitis.
   - You can choose any antibiotic that is effective against G+ve bacteria. For example, first generation cephalosporins.

2. Age of the patient:
   - e.g. Quinolones are contraindicated in extremes of age.

3. General status of the case:
   - e.g. a. pregnancy and lactation: no quinolones, tetracyclines, macrolides, ..etc
   - b. renal impairment: aminoglycosides are used cautiously , sulpha
   - c. hepatic: sulpha

4. Receiving other drugs:
   - e.g. phenytoin with amikacin …etc

5. History of allergy to any of antibiotics’ families

   • الخلاصة يعني أنك دلوقتي أتعلم الاستاسات بتاع العضادات الحيوية والاساس الله انت بتطبيه علي اي مرض وتشوف ايه المناسب للعيان ده من العضادات الحيوية
Ketoconazole:

- **Mechanism:**
  - Interfere with fungal cell wall synthesis
  - Highly lipophilic so concentrated in fatty tissue so can make toxicity unlike other more safe and effective antifungal agents like fluconazole and itraconazole

- **Medical uses:**
  - Broad spectrum antifungal
  - Usually prescribed for topical infections such as athlete's foot, ringworm, candidiasis (yeast infection or thrush)

- **Preparations:**
  - Fungizole, ketoconazole, nizoral 200mg

- **Dosage:**
  - One tablet once daily with food and continued after cureance for at least 1 week
II. **Fluconazole:**

- **Mechanism:**
  - Interfere with fungal cell wall synthesis
  - Fluconazole is primarily fungistatic; however, it may be fungicidal against certain organisms in a dose-dependent manner, specifically Cryptococcus.

- **Medical uses:**
  - Fluconazole is indicated for the treatment and prophylaxis of fungal infections where other antifungals have failed or are not tolerated (e.g., due to adverse effects), including:
    - Candidiasis caused by susceptible strains of Candida
    - Tinea corporis, tinea cruris or tinea pedis
    - Onychomycosis
    - Cryptococcal meningitis
  - Fluconazole can be used first-line for the following indications:
    - Coccidiodomycosis
    - Cryptococcosis
    - Histoplasmosis
    - Prophylaxis of candidiasis in immunocompromised people

- **Preparations:**
  - Diflucan 50, 150 mg caps
  - Flucoral, Fungican 150 mg caps

- **Dosage:**
  - Dosage varies with indication and between patient groups, ranging from a two-week course of 150 mg/day for vulvovaginal candidiasis to 150–300 mg once weekly for resistant skin infections or some prophylactic indications.

- **Side effects:**
  - rash, headache, dizziness, nausea, vomiting, abdominal pain, diarrhea, and/or elevated liver enzymes
  - anorexia, fatigue, constipation
  - Fluconazole has also rarely been associated with severe or lethal hepatotoxicity, so liver function tests are usually performed regularly during prolonged fluconazole therapy. In addition, it is used with caution in patients with pre-existing liver disease.
III. **Itraconazole:**

- **Mechanism:**
  - Interfere with fungal cell wall synthesis

- **Medical uses:**
  - Has a broader spectrum of activity than fluconazole. In particular, it is active against *Aspergillus*, which fluconazole is not.
  - It is also prescribed for systemic infections, such as aspergillosis, candidiasis, and cryptococcosis, where other antifungal drugs are inappropriate or ineffective.

- **Preparations:**
  - Itracon 100mg caps

- **Dosage:**
  - Vulvovaginal candidiasis: 200mg bid
  - Pityriasis versicolour: 200mg once daily for one week

- **Side effects:**
  - Elevated alanine aminotransferase levels are found in 4% of people taking itraconazole
  - "Small but real risk" of developing congestive heart failure
  - Liver failure, sometimes fatal

IV. **Topical antifungal agents:**

1. **Miconazole:**
   - Miconaz, micoban, daktarin

2. **Clotrimazole:**
   - Canesten, dermatin, locasten
Drug Dispensing Permission

Name: ...........
Diagnosis: Tinea Cruris
Date: //
Unit: .....  

Rx  Flucoral 150mg cap.

R/ Canesten 1% cream.

Signature
**Hints on antihelminthic medications**

- **Introduction:**
  - Nematodes (round worms): ascaris, ankylostoma, oxyuris, strongyloids & trichuris
  - Cestodes (tape worms): T. saginata, T. solium, H. nana, D. latum
  - Trematodes (flukes): bilharziasis

- **Albendazole:**
  - **Mechanism:**
    - As a vermicidal, albendazole causes degenerative alterations in the intestinal cells of the worm leading to impaired uptake of glucose by the larval and adult stages of the susceptible parasites, and depletes their glycogen stores.
    - Decreased production of adenosine triphosphate (ATP), which is the energy required for the survival of the helminth.
    - Due to diminished energy production, the parasite is immobilized and eventually dies.
    - Albendazole has larvicidal effects in necatoriasis and ovicidal effects in ascariasis, ancylostomiasis, and trichinosis.

- **Medical uses:**
  - Broad spectrum antihelminthic i.e. effective against nematodes, cestodes & trematodes
  - Protozoa: – Giardia lambilia
  - Neurocysticercosis .
  - Hydatid disease (echinococcosis).

- **Preparations:**
  - Bendax 200mg tabs
  - Alzental 200mg tabs
  - Vermizole 200mg tabs

- **Dosage:**
  - according to the type of the worm
  - 400 mg once daily (2 tabs or 20 ml suspension)
    1. Single dose: Enterobiasis, Ancylostomiasis, Ascariasis & Trichuriasis
    2. Three days: Strongyloidiasis, Taeniasis, Hymenolepiasis & Mixed or heavy infections.
    3. Five days: Giardiasis.
  - Neurocysticercosis: 400 mg (2 tablets or 20 ml suspension) twice daily for 8 – 30 days.
  - Hydatid disease: 400 mg (2 tablets or 20 ml suspension) twice daily for 12 weeks.
    (every 4 weeks must be followed by 2 weeks albendazole free interval)
• **Side effects:**
  - Albendazole may cause abdominal pain, dizziness, headache, fever, nausea, vomiting, or temporary hair loss.

• **Drug interaction:**
  - The drugs carbamazepine, phenytoin and phenobarbital lower the plasmatic concentration and the half life of albendazole.
  - The drug cimetidine heightens serum albendazole concentrations, and increases the half life of albendazole.

II. **Mebendazole:**

• **Mechanism:**
  - Block the uptake of glucose and other nutrients, resulting in the gradual immobilization and eventual death of the helminthes.

• **Medical uses:**
  - The drug is a highly effective broad spectrum antihelmintic indicated for the treatment of nematode infestations, including roundworm, whipworm, threadworm, and hookworm.
  - It is poorly absorbed and has no systemic effects.

• **Preparations:**
  - Antiver 100mg tabs
  - Vermin 100mg tabs
  - Verm-1 500mg tabs

• **Dosage:**
  - Oxyuris:
    - 100mg once weekly as a single dose (can be repeated after 2 weeks)
  - Other nematodes:
    - 100mg twice daily at morning and evening for 3 consecutive days (can be repeated after 2 weeks)

• **Side effects:**
  - Mebendazole is relatively free of toxic side effects or adverse reactions, although patients may complain of transient abdominal pain, diarrhea, slight headache, fever, dizziness, exanthema, urticaria and angioedema.

• **Drug interactions:**
  - Carbamazepine and phenytoin lower serum levels of mebendazole.
III. Flubendazole:
- The same indications and dosage as mebendazole
- Preparations:
  - Fluver 100mg tab
  - Fluvermal 100mg tab
  - Verm All 100mg tab

IV. Niclosamide:
- Mechanism:
  - Act directly on the worm leading to necrosis of the worm which is expelled with feces
- Medical uses:
  - effective against cestodes that infect humans
  - Niclosamide is used specifically to treat tapeworms and is not effective against other worms such as pinworms or roundworms.
- Preparations:
  - Niclosan 500mg
  - Yomesan 500mg
- Dosage:
  - It is a chewable tablet taken orally with water or juice
  - 4 tabs. One dose then 2 tabs. Daily for one week
  - Purgative (castor oil or Mg sulphate) should be taken after the dose by one day to expel the dead worms
- Side effects:
  - The medication can have side effects such as abdominal pain, anorexia, diarrhea, and emesis.
V. **Praziquantel:**

- **Mechanism:**
  - Not exactly known
- **Medical uses:**
  - Effective against flukes specially bilharziasis and tape worms
- **Preparations:**
  - Biltricide 600mg tab
  - Distocide 600mg tab
- **Dosage:**
  - 40mg/kg as a single dose
- **Side effects:**
  - The majority of side effects develop due to the release of the contents of the parasites as they are killed and the consequent host immune reaction.
  - The heavier the parasite burden, the heavier and more frequent the side effects normally are.
    1. Central nervous system:
       - Frequently occurring side effects are dizziness, headache, and malaise. Drowsiness, somnolence, fatigue, and vertigo have also been seen.
    2. GI Tract:
       - Approximately 90% of all patients have abdominal pain or cramps with or without nausea and vomiting.
       - Diarrhea may develop and may be severe with colic.
       - Sweating, fever, and sometimes bloody stools may occur together with diarrhea.
    3. Liver:
       - Asymptomatic and transient increases of liver enzymes (AST and ALT) are noted frequently (up to 27%).
       - No case of symptomatic liver damage has ever been seen so far.
    4. Sensitivity reactions:
       - Urticaria, rash, pruritus and eosinophilia in white blood cell counts
    5. Other locations/body as a whole:
       - Lower back pain, myalgia, arthralgia, fever, sweating, various cardiac arrhythmias, and hypotension
- **Drug interactions:**
  - Rifampicin decreases plasma concentrations of praziquantel.
  - Carbamazepine and phenytoin are reported to reduce the bioavailability of praziquantel.
  - Chloroquine reduces the bioavailability of praziquantel.
  - Chloroquine reduces the bioavailability of praziquantel.
- **VI. Local preparations applied to the anal area:**
  - **Action:**
    - Protect against auto infection from worms
    - Prevent urticaria around anal area
  - **Preparations:**
    - Ammoniate mercury 5%
    - White precipitate 5%
  - **Dosage:**
    - Twice daily
      (Applied to the anal area)
Drug Dispensing Permission

Name: ............
Diagnosis: Enterobiasis

Date: / / 
Unit: ..... 

Rx

Bendax 200 mg tab.

R/ White Precipitate 5% oint.

Signature
Hints on antiviral drugs

- **Introduction:**
  - Antiviral drugs are one class of antimicrobials, a larger group which also includes antibiotic, antifungal and antiparasitic drugs.
  - They are relatively harmless to the host, and therefore can be used to treat infections.
  - Most of the antiviral drugs now available are designed to help deal with HIV, herpes viruses, but actually the cause of a wide range of other diseases, such as chicken pox, the hepatitis B and C viruses, which can cause liver cancer, and influenza A and B viruses.
  - Designing safe and effective antiviral drugs is difficult, because viruses use the host's cells to replicate.
  - This makes it difficult to find targets for the drug that would interfere with the virus without also harming the host organism's cells.
  - Moreover, the major difficulty in developing vaccines and anti-viral drugs is due to viral variation.
  - The emergence of antiviral is the product of a greatly expanded knowledge of the genetic and molecular function of organisms, allowing biomedical researchers to understand the structure and function of viruses, major advances in the techniques for finding new drugs, and the intense pressure placed on the medical profession to deal with the human immunodeficiency virus (HIV), the cause of the deadly acquired immunodeficiency syndrome (AIDS) pandemic.

- **Preparations:**
  1. **Acyclovir:**
     - **Mechanism:**
       - the enzyme thymidine kinase in virus-infected but not uninfected cells initiates the activation of acyclovir into the triphosphate. This interferes with viral DNA polymerase and inhibits viral duplication
     - **spectrum:**
       - HSV I and II, VZV, CMV, EBV
     - **trade names:**
       - zovirax, acyclovir, virin, novirus, lovir...etc

  2. **Ribavirin:**
     - **mechanism:**
       - inhibit nucleic acid synthesis of the virus
     - **spectrum:**
       - wide range of DNA and RNA viruses including influenza type A & B, rubella, rhinovirus, viral hepatitis and HSV.
     - **trade names:**
       - riba, ribavirin, viracure, ...etc
3. **Amantadine HCL:**
   - **mechanism:**
     - inhibits penetration of virus into the host cell it has no virucidal actions
   - **uses:**
     - Prophylactic against infection with influenza type A2 only.
     - Treatment of herpes zoster.
     - In conjugation with other therapy in the treatment of Parkinsonism because it may augment the dopaminergic activity. also it has sympatomatic benefits bec it may reduce dyskinesias which caused by levodopa or dopamine agonist
   - **trade names:**
     - infex, amantadine, adamine, amantine, PK-Merz, ...etc

4. **oseltamivir:**
   - **mechanism:**
     - an oral prodrug of oseltamivircarboxylate.
     - an inhibitor of the enzyme neuroaminidase, which has a role in the infectivity and replication of influenza type A & B viruses.
   - **uses:**
     - in adults and children over 1 year in treatment and as a post exposure prophylaxis of influenza type A & B
   - **Trade names :**
     - Tamiflu

5. **Interferon alfa:**
   - **Mechanism:**
     - exhibits immunomodulatory activityinhibit viral replication both in vivo and in vitro
   - **Trade names:**
     - avonex, egyferon, Peg-Interon, .... etc
I. **Proton pump inhibitors:**

- **Mechanism:**
  - irreversibly blocking the H⁺/K⁺ ATPase enzyme system of the gastric parietal cells.
  - Most effective drugs on acid secretion and it act on the target cells i.e. parietal cells

- **Uses:**
  a. Dyspepsia
  b. GORD
  c. Barret’s Oesophagus (can reverse it)
  d. Peptic ulcer
  e. Zollinger ellison syndrome

- **Members of the group & trade names:**
  a. Omeprazole: **Gastrazole, omepak, omez, pepzol, …etc**
  b. Pantoprazole: **controloc, pantoloc, …etc**
  c. Esomeprazole: **nexium, ezogast, …etc**
  d. Lansoprazole: **gastrocure, …etc**
  e. Rabeprazole: **Pariet, …etc**

- **Dosage:** varies according to the cause e.g. DU 20mg orally once a day before a meal. Most patients heal within 4 to 8 weeks. GU 40mg orally once a day before a meal for 4 to 8 weeks.

- **Precautions:**
  a. C/I during pregnancy and lactation
  b. Affect drugs which depend on gastric acidity in their action e.g. **sucralfate** or in their absorption e.g. **ketoconazole**

- **Recently: Potassium-competitive acid blockers (P-CABs)**
  Potassium-competitive inhibitors are experimental drugs that reversibly block the potassium binding site of the proton pump. **Soraprazan** and **revaprazan** block H⁺ secretion much more quickly than classical PPIs (within a half-hour). The development of soraprazan, however, has been discontinued in 2007.
II. **H2 Blockers:**

- **Mechanism:**
  Competitive antagonists of histamine at the parietal cell H₂ receptor. They suppress the normal secretion of acid by parietal cells and the meal-stimulated secretion of acid. They accomplish this by two mechanisms:
  a. Histamine is blocked from binding on parietal cell H₂ receptors which stimulate acid secretion
  b. Other substances that promote acid secretion (such as gastrin and acetylcholine) have a reduced effect on parietal cells when the H₂ receptors are blocked. The H₂ antagonists are inverse agonists rather than true receptor antagonists.

- Effective on reducing acid secretion

- **Uses:**
  a. Dyspepsia (75 mg concentration is used for dyspepsia)
  b. GORD (150 mg twice daily)
  c. Peptic ulcer (150 mg 2 times a day, or 300 mg once a day after the evening meal or at bedtime).

- **Members of the group & trade names:**
  a. Ranitidine: aciloc, zantac, …etc
  b. Famotidine: famotin, famotak, …etc
  c. Nizatidine: ulcefree, …etc
III. \textbf{sucralfate:}
- \textbf{Mechanism:}
  a. Sucralfate is a locally acting substance that in an acidic environment (pH < 4) reacts with hydrochloric acid in the stomach to form a cross-linking, viscous, paste-like material capable of acting as an acid buffer for as long as 6 to 8 hours after a single dose.
  b. It also attaches to proteins on the surface of ulcers, such as albumin and fibrinogen, to form stable insoluble complexes. These complexes serve as protective barriers at the ulcer surface, preventing further damage from acid, pepsin, and bile. In addition, it prevents back diffusion of hydrogen ions, and adsorbs both pepsin and bile acids.
  c. Recently, it has been indicated that sucralfate also stimulates the increase of prostaglandin E$_2$, epidermal growth factors (EGF), and gastric mucus

- \textbf{Uses:}
  a. PU (the standard recommended \textit{sucralfate dosage} for treating duodenal ulcers in adults is 1 gram four times daily on empty stomach  يطحن على معلقة عمل أو طحينة.
  b. GORD
  c. Proctitis by irradiation or ulcerative colitis (3g/15ml enema)
  d. After corrosive ingestion to enhance mucosal healing and reduction of stricture formation

- \textbf{Trade names: Gastrofait.}

IV. \textbf{Antacids:}
- \textbf{Mechanism:}
  a. directly neutralize acidity
  b. increasing the pH
  c. reversibly reduce or block the secretion of acid by gastric

- \textbf{uses:}
  heartburn, the major symptom of gastroesophageal reflux

- \textbf{Trade names:}
  a. Tablet form: يجب مضغها جيدا 
     \textbf{glycodal, acicone, allucal, antacid, ...etc}
  b. Suspention form: يجب رجها جيدا قبل الاستعمال 
    \textbf{Geveskon, epicogel, mucogel, ...,etc}
  c. Sachet form:
    \textbf{Fawar fruit, xenos fruit, ...etc}
V. **Drugs used in ttt of H. pylori:**

a. **Helicure** (clarithromycin, omeprazole, tinidazole)
   The usual *dose of Helicure* is 2 tablets / day (one in the morning and one in the evening) for two weeks preferably during meals.

b. **Conaz** (nor-floxacin + tinidazole)

c. **Norfloxcin Tz** (nor-floxacin + tinidazole)

d. **Spirazole** (spiramycin + metronidazole)

VI. **PGs analogue:**
- Antisecretory, protective agents
- Trade names: **Misotac**

VII. **Mucosta:**
Cytoprotective agent used in ttt of PU

---

**Summary**

**Anti ulcer drugs** :- Gastrazole, omepak, omez, pepzol, controloc, pantoloc, nexium, ezogast, gastrocure, Pariet, aciloc, zantac, famotin, famotak, famotin, famotak, ulcefree, Gastrofait, glycodal, acicone, allucal, antacid, Fawar fruit, xenos fruit, Helicure Conaz, Norfloxcin Tz, Spirazole, Misotac
Antiemetic agents: (Regulate GIT motility)

1. Domperidone:
   - **Mechanism:**
     a. restore motility & tone of the upper GIT
     b. facilitate gastric emptying (prokinetic)
     c. regulate oesophageal and duodenal functions
   - **Uses:**
     a. Nausea and vomiting
     b. To restore gastric emptying
     c. GORD and PU
   - **Dosage:**
     قرص قبل الوجبات ب ½ ساعة 3 مرات يوميا
   - **Trade names:**
     motiium, motinorm, farcotelium, gastromotil

2. Metoclopramide
   - **Mechanism:** regulate GIT motility and facilitate gastric emptying
   - **Uses:** nausea, vomiting, hiccup
   - **Precautions:**
     a. C/I in the first trimester
     b. Not the 1st choice as antiemetic in children due to its extrapyramidal manifestations
   - **Trade names:**
     Primperan, meclopram, plasil, ….etc

3. Mosapride:
   - **Mechanism:** 5HT4 agonist , +++ acetyl choline secretion >> stimulate GIT motility
   - **Uses:** nausea, vomiting, GORD, gastritis.
   - **Trade names:** mosapride, Fluxoprilde
4. **Antiemetic agents which are safe during pregnancy:**
   - **Meclozine + vit B6**
     - Used safely during pregnancy
     - Used also as symptomatic treatment of nausea and vertigo due to Menieres disease and other labyrinthine disturbances
     - **Trade names:** Navoproxin, Dizirest B6, vomidoxine, etc..
   - **Corticoadrenal ext. + vit B6:**
     - The most famous trade name is Cortigen B6
     - The mechanism is not well understood.
   - **Prochlorperazine maleate:**
     - Bioadhesive-antiemetic buccal tablets superior to domperidone and metoclopramide in reducing No. and Quantity of emesis
     - It's oridinally antipsychotic drug with properties similar to chlorpromazine
     - **Trade Name** is Emedrotec

5. **Itopride HCL:**
   - **Mechanism:** Gastroprokinetic
   - **Uses:**
     Typically, itopride is indicated in the treatment of GI symptoms caused by reduced GI motility:
     a. dyspepsia of a non-ulcer type (gastric "fullness", discomfort, and possible pain)
     b. anorexia
     c. heartburn
     d. regurgitation
     e. bloating
     f. nausea and vomiting
   - **trade names:**
     ganaton, garopride, ...etc

**Summary**

**Antiemetic agent:** motium, motinorm, farcotelium, gastromotil, Primperan, meclopram, plasil, mosapride, Fluxopride, Navoproxin, Dizirest B6, vomidoxine, Cortigen B6, Emedrotec, ganaton, garopride
1. Drugs that --- GI peristalsis
   - e.g Imodium
   - overdose may lead to constipation and GI atony
   - not widely used now

2. Smecta:
   - Protect GI wall and absorb pathogens and toxins from GIT
   - كبس على ¼ كوب ماء 3 مرات يوميا

3. Metronidazole:
   - Trade names: Flagyl, amrizole, dumozol, …etc
   - Uses & Dosage:
     a. Amoebiasis >> 500 mg tds for 5-10 days (قرص 3 مرات يوميا لمدة 10 أيام)
     b. Giardiasis >> 500 mg tds for 5 days or 500 mg bid for 7 days
     c. Trichomoniasis >> 500-1000mg tds or bid for 7 days & the husband should also be treated
     d. Leishmaniasis
     e. Ttt and prophylaxis of anaerobic bacterial infections e.g. PID, bacterial vaginosis, ulcerative gingivitis, …etc
     f. Hepatic patients and colonic preparation

4. Ornidazole:
   - Trade names: ornidaz
   - Used similarly like metronidazole but has different dosage
   - In amoebiasis >> 500mg bid for 5-10 days
   - In amoebic dysentery >> 1.5g as a single daily dose for 3 days

5. Secnidazole and Tinidazole:
   - Trade names:
     a. Secnidazole: senidal, flagentyl, cipazole, …etc
     b. Tinidazole: protozole
   - Uses & Dosage:
     a. Chronic intestinal amoebiasis (cystic form): 2g single daily dose for 3 days
     b. Urogenital trichomoniasis: 2g single dose
6. Diloxanide + Metronidazole:
   - Trade names: furazol, Dimetrol, …etc
   - Strong combination for tissue and luminal amoebiasis
   - قرص او قرصين كل 8 ساعات لمدة اسبوع او 10 أيام

7. Nifuroxazide:
   - Bactericidal against wide range of G +ve and G –ve enteropathogenic bacteria
   - Safe during pregnancy and lactation
   - كبسولة كل 8 ساعات وممكن كل 4 ساعات
   - Trade name: antinal

8. Other Diarrhea agents:
   - Intetrix, entocid, Streptoquin, …etc

Diarrhea agents: Immodium, Smecta, Flagyl, amrizole, dumozol, Ornidaz, senidal, flagentyl, cipazole, protozole, furazol, Dimetrol, Antinal, Intetrix, entocid, Streptoquin,
1. **Food laxatives:**
   في بعض أنواع الأكل مليئة بطبيعتها زي البرتقال والبطيخ
2. **Lubricants:**
   - Oil and fats الاكلات اللي فيها دهون وزيوت كتيرة
3. **Bulk agents:** (fibers)
   - Intestinal peristalsis depends on the bulk of the stool
   - Fibers either dietary or medications increase the bulk of the stool and stimulate the intestinal peristalsis
   - طبق السلطة اللي كلها خضروات زي الخس والجرجير وغيرهم من احسن المصادر الطبيعية للالياف
   - **Agiolax** is a herbal agent and act mainly by increasing the bulk of the stool
     (it’s granules not effervescent حبيبات بتتاخذ بالبق ويبلع العيان بالميه)
4. **Irritant agents:**
   - Irritation of intestinal movements
   - E.g. **castor oil, bisacodyl, ….etc**
5. **Osmotic agents**
   - E.g. **glycerine, Lactulose**
   - Lactulose is broken down by colonic bacterias mainly into lactic acid which cause:
     a. Increase in osmotic pressure of the colon >> ++ fecal bulk >> ++ peristalsis
     b. Decrease in PH of the colon >> -- absorption of ammonia and nitrogenous compounds
6. **Picolax:**
   - Colonic bacteria >> hydrolysis of picolax >> Stimulate intestinal movement
   - Broad spectrum antibiotics reduce the effect of picolax
**N.B.** Don’t forget the treatment of anal fissure **Lignocain cream, GTN, Lactulose**

**Laxatives:** Agiolax, castor oil, bisacodyl, glycerine, Lactulose, Picolax
**Antiflatulents:**

- E.g. eucarbon, Disflatyl, Simethicone
- They adsorb gases of the GIT
- 1-2 tablets tds

**Digestant**

e.g. Spasmodigestine, spasmocanulase, digestin, digest Eze, donalase-s, zymogen forte, amerase, etc.

**Colonic preparations:**

1. **Mebevrine:**
   - **Mechanism:** spasmolytic with selectivity on smooth ms of the GIT specially the colon
   - **Dose:** قرص أو قرصين كل 8 ساعات قبل الاكل ب ½ ساعة
   - **Trade names:**
     e.g. colospasmin, duspatalin, colona, coloverin, etc.

2. **Trimebutine maleate:**
   - **Uses:**
     a. IBS or functional digestive disorders specially abdominal pain, cramps, spasms, flatulence, diarrhea or constipation
     b. Postoperative to restore intestinal movements
   - **Trade names:**
     e.g. Gast-reg, tritone, etc.

3. **Colonic preparations containing natural fibers or oils:**
   - e.g. bran, colostop
4. **colonic preparations containing tranquilizer:**
   e.g. librax, cloxide, stellasil, …etc

5. **sulfasalazine (mesalazine):**
   - **Uses:**
     a. IBD
     b. Has disease modifying action in RA
   - **Trade names:**
     e.g. salofalk, pentasa, salazopyrin, …etc

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**Summary**

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**colonic preparations:**
- colospasmin, duspatalin, colona, coloverin, Gast-reg, tritone, bran, colostop, librax, cloxide, stellasil, salofalk, pentasa, salazopyrin,

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**Antispasmodics**

- Used to relieve visceral spasms e.g. intestinal, biliary, urinary, …etc
- **E.g.** buscopan, spasmorest, spasmofree, visceralgine, spasmopyralgine, ….etc
Drug Dispensing Permission

Name: ...........
Diagnosis: Anal Fissure
Date: / / 
Unit: ..... 

Rx Lactulose syp.
ملعقة كبيرة ٢ مرات يومياً

R/ Lignopanthen cream.
دهان ٢ مرات يوميا قبل عشر دقائق GTN

R/ GTN cream
دهان ٢ مرات يومياً
Signature
Rx Zantac 150mg tab.

R/ Motelium tab.

Signature
Drug Dispensing Permission

Name: ..........  Diagnosis: IBS with flatulence
Date: / /  Unit: .....  

Rx Spasmoamerase tab.

قرص قبل الوجبات ٢ مرات يوميا

R/ Eucarbon tab.

قرص ٢ مرات يوميا

Signature
I. Silymarin:

- **Actions of silymarin**: (up till now it is **PLACEBO** for hepatic patients)
  - Antioxidant, silymarin scavenges for free radicals that can damage cells exposed to toxins. (More potent than vitamin E by 10 times as antioxidant)
  - Increases glutathione in the liver by more than 35% in healthy subjects. Glutathione is responsible for detoxifying a wide range of hormones, drugs, and chemicals. High levels of glutathione in the liver increases its capacity for detoxification.
  - Increases the level of the important antioxidant enzyme superoxide dismutase
  - Stimulates protein synthesis in the liver, which results in an increase in the production of new liver cells to replace the damaged ones.
  - Anti-inflammatory actions: The inhibitory effect on 5-lipoxygenase pathway resulting in inhibition of leukotrien synthesis is a pivotal pharmacological property of silymarin.
  - Antifibrotic action: specially during early stages of cirrhosis

- **Medical uses**:
  - Alcoholic liver diseases
  - Liver cirrhosis
  - Viral hepatitis: Even though silymarin does not affect viral replication it may have beneficial role in viral hepatitis by its inhibitory action on inflammatory and cytotoxic cascade of events induced by the viral infections.
  - Mushroom poisoning: The most remarkable use of silymarin is in the treatment of *Amanita phalloides* (Death cap) poisoning, a toxic mushroom widespread in Europe and North America.
  - Decongest the liver (A liver decongestant stimulates bile flow through the liver and gallbladder, thus reducing stagnation and preventing gallstone formation and bile-induced liver damage.)
  - Protect the liver against pharmaceuticals that stress the liver, such as acetaminophen and tetracycline

- **Preparations & dosage**: (200-800mg daily in divided doses)
  - Legalon 70, 140 mg
  - Legalex 70mg
  - Hepaticum 140mg
  - Silymarin sachets 140mg
- **Side effects:**
  - GI upset like bloating, dyspepsia, nausea, irregular stool and diarrhea. It was observed in 2 to 10 per cent of patients in clinical trials, which were similar to placebo.
  - It also produced pruritus, headache, exanthema, malaise, asthenia, and vertigo.

- **Recently:**
  - There are new studies suggesting that silymarin plays an important role in the prevention and treatment of liver diseases and primary liver cancer.

### II. Silymarin plus & other liver support drugs: (liver shampoo 😊)

-Zi ما يسميها معظم الدكتوراء شامبوهات الكبد وهي عبارة عن ادوية لتحسين وظائف الكبد زي ما الشركات بتاعهم بتقول

- *silymarin plus*
- الأدوية دي لو معها سليمارين تدخل تحت مسمى
- انها لو لا تحتوي علي سليمارين تبى مجرد مدعمات للكبد لا تحتوى علي سليمارين

#### 1. Silymarin plus:
- Silymarin plus
- Hipamax plus
- Levatone
- Liverin
- Selectival
- Silipex
- Seralone-E

#### 2. Liver support:
- Hepatic forte
- Liver albumin plus
- Penne
- Farcovit B12
- cura
III. **Ursodeoxycholic acid: (UDCA)**

- **Action:**
  - The drug reduces cholesterol absorption and is used to dissolve (cholesterol) gallstones
  - protection of injured cholangiocytes against toxic effects of bile acids
  - stimulation of impaired biliary secretion
  - stimulation of detoxification of hydrophobic bile acids
  - inhibition of apoptosis of hepatocytes

![Diagram of mechanisms of action](image)

**Fig. 2.** Mechanisms of action of ursodeoxycholic acid (UDCA) in cholestatic liver diseases.

- **Medical uses:**
  - Ursodeoxycholic acid (UDCA) is widely used for the treatment of a variety of chronic cholestatic liver diseases.
  - At present, it is the only drug approved by the United States Food and Drug Administration for the treatment of primary biliary cirrhosis (PBC).
  - Medical treatment on non-calcified cholesterol gall stones
Fig. 1. Pathogenetic processes of cholestatic liver diseases.

Abbreviations: PBC, primary biliary cirrhosis; PFIC, progressive familial intrahepatic cholestasis; PSC, primary sclerosing cholangitis.

- **Preparations:**
  1. Ursofalk, ursodiol, ursochol caps. 250mg
  2. Ursogall caps. 300mg
  3. Livagoal caps. 450mg
  4. Ursotwin caps 500mg
  5. Urso plus caps (UDCA 250mg + silymarin 140mg)

- **Dosage:**
  - For gall stone dissolution: 8-10mg/kg as single dose at bedtime or in 2 divided doses
  - For gall stone prevention: 600mg/day in 2 divided doses
  - For chronic hepatitis and cholestatic liver diseases: 10-15mg/kg in 2-4 divided doses
• Side effects:
  - These common side effects include stomach ache, exhaustion, coughing, swelling, indigestion, dizziness, backache, headache, diarrhea, constipation, loss of hair, metallic taste inside of the mouth, joint or muscle pain, skin rash, nausea, gas and dry skin.

• Drug interactions:
  - Oral contraceptive pills and lipid lowering agents increase hepatic cholesterol secretion and encourage cholesterol gall stone formation so they may counteract its effect.

IV. **Rowachol: (& bilichol)**

• Active ingredients:
  - Borneol, camphene, cineole, menthol, menthone, pinene

• Actions:
  - Reduces cholesterol levels by inhibiting an enzyme (HMG Co-A reductase) which is involved in the production of cholesterol in the liver. Low levels of cholesterol in the bile help to dissolve gallstones and prevent further stones from forming.
  - This medicine may also have a beneficial action on natural insulin production.
  - This medicine is used in the management of liver and gall bladder complaints.

• Medical uses: (relief biliary spasm & help to expel biliary stones & antiseptic properties)
  1. Cholecystitis - inflammation of the gall bladder.
  2. Gall stones

• Dosage:
  - 1-2 caps 3 times daily

V. **L-ornithin L-aspartate (LOLA):**

• Action:
  - increase the generation of urea through the urea cycle, a metabolic pathway that removes ammonia by turning it into the neutral substance urea.

• Medical uses:
  1. Hepatic encephalopathy

• Preparations:
  1. Hepa Merz sachet
  2. Aspatrend sachet

• Dosage:
  - 1-2 sachets 3 times daily
  - Should be reduced if there’s renal impairment

• Side effects:
  - Transient nausea and vomiting.
VI. Rifaximin:

- **Introduction:**
  - Semisynthetic antibiotic based on rifamycin.
  - It has poor oral bioavailability, meaning that very little of the drug will be absorbed into the bloodstream when it is taken orally.

- **Mechanism of action:**
  - Rifaximin interferes with transcription by binding to the β-subunit of bacterial RNA polymerase.

- **Medical uses:**
  1. Travelers diarrhea:
     - Caused by E.coli only
     - Stopped if diarrhea persists more than 3 days or if there's development of fever
  2. Hepatic encephalopathy:
     - Welltolerated, safe and efficacious in both short- and long-term use in HE
     - Superior to neomycin (ototoxic & nephrotoxic)
     - Superior to metronidazole (GI upset and neurotoxic)
     - Superior to lactulose according to the recent studies
     - Clinical trials and studies for rifaximin are lesser than those for lactulose but there's 2 studies recommend rifaximin in stages I-III HE
     - Not recommended for severe hepatic impairment due to increase systemic absorption
  3. Relieving chronic functional symptoms of bloating and flatulence that are common in irritable bowel syndrome.

- **Preparations:**
  - Gastrobiotic 200mg tab (available in Egypt)
  - XIFAXAN 200, 550mg tab

- **Dosage:**
  1. For travelers diarrhea:
     - One tablet 200mg tds for 3 days
  2. For hepatic encephalopathy:
     - One tablet 550mg bid

- **Side effects:**
  - GI manifestations:
    - Abdominal distension, diarrhea, dry throat, fecal abnormality, gingival disorder, inguinal hernia NOS, dry lips, stomach discomfort
  - Chest pain, fatigue, malaise, pain, weakness
Name: .......... Date: //
Diagnosis: Liver Cirrhosis Unit: .....
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