College of Pharmacy/University of Baghdad/Clinical Pharmacy Dept. Fourth year Clinical Pharmacy workshop. 2014-2015. Practice no. 4

Cardiovascular system part II						
1	2	3				
الدكتورة احلام لوثر	الدكتور حيدر سعود	الدكتور إبراهيم صباح مكى				
اسم المريض: اشواق ابر اهيم العمر: ٥٠ سنة	اسم المريض: سمير علوان العمر:٦٦	اسم المريض: حنان حبيب العمر:٥٧ سنة				
Classic Angina	ا سنة	Classic angina and				
Rx	Classic Angina	hypertension				
Tenormin®100mg tab	Classic Alighia	Rx				
1 tab daily	Rx	Isosorbide mononitrate 20mg				
Glyceryl Trinitrate (Angised ®) 0.5	Glyceryl Trinitrate (Angised ®)	tab				
mg sublingual tab.	0.5 mg sublingual tab.	1 tab .B.i.d (8 AM and 4 PM)				
PRN	PRN	Glyceryl Trinitrate (Angised ®)				
Glyceryl Trinitrate '5' patches	Isosorbide dinitrate (Isordil®)	0.5 mg sublingual tab.				
1 patch to be applied for 16 hours daily and removed at night	10mg tab.	PRN				
Aspirin 100mg enteric coated tab	1tab. T.i.d	Aspirin 100mg enteric coated tab				
Itab. daily.	Aspirin 100mg enteric coated tab	Itab. daily.				
التاريخ / /٢٠١٥	1tab. daily.	Moduretic® tab.				
, , ()	Paracetamol tab.	1 tab daily				
	O/N					
Q1-What is the main indication for	التاريخ / /٢٠١٥	التاريخ / /٢٠١٥				
sublingual glyceryl trinitrate (GTN)?		القاريخ / ۱۲۱۶				
And what instruction should be	Q4-What is main indication for	O7 What are the differences				
given to the patient with regard to	oral isosorbide dinitrate	Q7- What are the differences between isosorbide mononitrate				
the use and storage of GTN	(ISDN)? Knowing that nitrate					
sublingual tab.?	can produce toleranc e, how	(ISMN) and isosorbide dinitrate (ISDN)?				
الملحق العربي + See BNF	should the patient be instructed	(See supplement D)				
	about his medication so as to	(See supplement D)				
L J	minimize tolerance?	Q8-Why did the Dr. recommend				
Q2-If the patient found difficulty in	[]	to give the second dose after				
dissolving the SL tab. !!!!	(See supplement B also)	about 8 hours rather than 12				
What alternative dosage form of		hours?				
GTN that provide rapid relief of	Q5-knowing that nitrate can	Hint: see tolerance				
symptom? Where (site) it should be	cause headache ? How should					
applied?	you educate the patient about	L J				
See BNF and supplement A	this effect?	Q9-later on the Dr. replace the				
	(See supplement C)	ISMN ordinary tab. By ISMN				
What happen if the SL tablets left	What other side effects might	m/r (Imdur® 60mg tab. To be				
out of the bottle on a table?	be caused by nitrate? []	given once daily). What is the				
See supplement A		optimum time (morning,				
11	Q6-If the patient has erectile	night) for administration?				
Q3- What is the main indication for	dysfunction . Could he safely	Why?				
GTN patches?	take sildenafil (Viagra®)	,, ny .				
And what instruction should be	Tadalafil (Cialis®), or	[]				
given to the patient with regard to	Vardenafil (Levitra®)? Why?					
the site of application. Why the Dr.						
recommend to left off the patch for	What is the other indication for					
several consecutive hours (about 8	sildenafil and tadalafil (other					
hours)in each 24 hours ?	than erectile dysfunction)?					
Hint :see Tolerance	L J					
[]						

الدكتورة رغد لؤى سلمان اسم المريض زينب شاكر العمر: ٦٠ سنة

Angina and hypertension

Nifedipine (Adalat®) 20mg m/r

1 tab B.i.d

Rx

Aspirin 100mg enteric coated tab 1tab. daily.

التاريخ / /٢٠١٥

Q10-What are the **main indications** for nifedipine [1? What is its major site of action (vessel or myocardium)

1?

Q11- Do you recommend to maintain the patient on one brand name of m/r nifedipine? Why?

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O12-What are the **side effect** associated with vasodilatation produced this drug

Q13-The patient return to the pharmacy in the 2nd day saying that the tablet had been passed unchanged with the stool? (What will you tell him)?

Q14-During the treatment? The patient develops severe fainting and drop in BP after the ingestion of grapefruit juice? Rationalize and educate the patient about this effect?

Hint: see nifedipine caution and Appendix 1 under grapefruit juice?

(See supplement E also) 1

الدكتور عبد الله ناصر حسن اسم المريض: عباس خيون لعمر: ٥٥

Angina

Rx

Amlodipine 10mg tab 1tab.daily.

التاريخ / /٢٠١٥

Q15-What are the **differences** between Amlodipine and Nifedipine?

Q16-3 weeks later the patient develop ankle edema? Rationalize and what are your recommendations for the physician? (See supplement F also)

Q17-Is the use of **diltiazem** associated with lower incidence of this side effect? (See supplement F also)

الدكتور علاء عماد اياد اسم المريض: سمير فرحان العمر: ٩٥ سنة

subarachnoid hemorrhage

Nimodipine (Nimotop®)

30mg tab.

60mg (i.e. 2 tablets) every 4 hours.

7.10/ / التاريخ

18-What is the **difference** between **nimodipine** and other CCBs? What is the main **indication** of it? At what **time** the treatment with it should be started after hemorrhage? And for **how long** it will continue?

اسم المريض:مهند كريم العمر: ٤٧ سنة

Supraventicular arrhythmia

Rx

Verapamil 40 mg tablet 1tab. t.i.d

التاريخ / /٢٠١٥

Q19-Why does **Verapamil** (but not nifedipine or other dihydropyridine CCBs) is used for arrhythmia? [What are the **other indications** for it?

Q20-What is the common **GI** side effect of Verapamil?

Q21-Can we use Verapamil or diltiazem safely in patient with heart failure or in combination with beta-blockers? Why?

الدكتورة يقين وليد محمد حسين

اسم المريض: شاكر ياسر العمر:٥٣ سنة

Angina, Duodenal ulcer.

S. cholesterol=270mg/dl

Simvastatin (Zocor) 20mg tab.

1tab. Daily

Omeprazole 20mg cap

One cap bid for one week.

Clarithromycin 500mg tab

1 tab bid for one week.

Amoxicillin 500 mg cap.

2 cap bid for one week.

Tenormin®100mg tab

1 tab daily

۲ . ۱ ٤/ / التاريخ

O22-To which group of Lipidregulating drugs, Simvastatin belong? Is it effective more for cholesterol or Triglyceride reduction?

O23-Knowing, that Statins can cause myopathy? What counseling should be given about this side effect?

l See side effect: muscle effect

Q24- Knowing, that Statins can cause hepatotoxicity? How we can monitor the patient for this side effect? Hint: see caution

Q25-At what time of the day (morning, night...) the single dose of statin is usually given? Why?

(See supplement G)

Q26-Could the **grapefruit juice** taken safely by patient take Simvastatin? Why? [

Q27-What is the **problem** in this Rx: Hint: see appendix 1 under Statins What do you recommend: see supplement H or see section 1.3 the table of recommended regimen of H.pylori eradication to change the antibiotic

الدكتور يوسف ضياء

اسم المريض: ستار خضير ٦٩سنة

Benign prostate hyperplasia (BPH)

Rx

Terazocin 2 mg tab

1 tab. daily

7.10/ / التاريخ

Q28-Why does α-blockers (like Terazocin) are used in BPH? See section: 7.4.1 (drugs for urinary retention)

Q29-At what time of the day (morning, or bedtime) the **first** dose of α -blockers should be given? why? And what should the patient do if symptoms such as dizziness, fatigue, or sweating occur?

Hint: see chapter 7 under Terazocin dose :first dose effect

Homework

Educate the patient about this

(hypertension and angina)

Zocor 20mg tab.

1tab. Daily

Angised sublingual tab.

PRN

Isordil 10mg tab.

1tab. T.i.d

Aspirin 100mg enteric coated tab

1tab. daily.

Capoten 25 mg tab.

1/2 tab. X 2

Tenormin 100 mg tab.

1 x 1

الدكتور عمر حسين سرمك

اسم المريض: شراد عطوان العمر: ٦٢سنة Angina associated with

coronary vasospasm (prinzmetal's angina) also called (variant) angina

Diltiazem 120 mg m/r cap.

1 cap. B.i.d

Aspirin 100mg tab.

1tab. Daily

Glyceryl Trinitrate (Angised ®)

0.3 mg sublingual tab.

PRN

Q30-Are the CCBs valuable in this form of angina? [

Q31- Do you recommend to maintain the patient on one brand name of m/r Diltiazem? Why?

11

اسم المريض:سمير فرحان

Deep Vein Thrombosis

Rx

Heparin inj...

15000 unit S.C twice daily

Warfarin 5 mg tab

1 tablet daily

Q32-For how long we use heparin and warfarin concomitantly?

Why? [Q33-What is the **laboratory test** used to **monitor heparin** therapy?

l and what is the laboratory test used to monitor warfarin

therapy?[

Q34-Can we use heparins during **pregnancy**? Which type is preferred (unfractionated heparin (UFH) or low molecular weight heparin (LMWH)) and why?

Q35-Give three examples for LMWH. What are the advantages of LMWH over UFH?

O36-What is **the side effect** of heparin on **platelets count**? How should this effect be monitored?

1

Supplement

A-Sublingual, **buccal**, or **spray product**s are the products of choice for **acute anginal attack**. **Oral**, **ointment**, and **transdermal patches** products are acceptable for the **long-term prophylaxis of angina**.

Note : S.L tablet of GTN left out of the bottle on a table **will lose its effectiveness in just a few hours** ⁽¹⁾.

B-Tolerance can be limited by maintaining a **nitrate-free interval (NFI)** of about 10 to 12 hours daily Nitrate dosing schedule should be arranged to permit NFI during the night because angina is more likely to occur during the work day. Therefore: He should take his oral nitrate **at 7 am, noon, and 5 pm** because his exercise –induced angina is likely to occur during daylight hours. He may need to adjust his schedule if he arises earlier than 7 AM because early –morning angina is common ⁽¹⁾

Note: (Patients with nocturnal angina should arrange their NFI during the day ⁽¹⁾).

C-Nitrate induced headache is usually **transient**, typically lasting several days to few weeks. Patients should therefore be encouraged to persevere with the therapy, using simple analgesics (**Paracetamol**) when required to control any headaches) (1,4)

(حبوب الانجسيد تحت اللسان) ١-عند حدوث الالم في الصدر ---يجب <u>الجلوس</u> فورا مع وضع الحبة تحت اللسان.

٢-اذا لم يختف الالم بعد ٥ دقائق فيجب الذهاب فورا إلى المستشفى وفي هذا الأثناء يمكن وضع حبة ثانية تحت اللسان و إذا لم يختف الالم بعد ٥ دقائق اخرى فتوضع حبة ثالثة تحت اللسان كحد أقصى .

٣-قد تشعر عند استخدامك للحبوب بشئ من الصداع او الدوار او الخفقان او الطعم الحاد للحبة في الفم وهذا شئ طبيعي نتيجة عمل الدواء الموسع للشر ابين.

٤-من الممكن أن يستخدم الأنجسيد كوقاية وذلك باخذ حبة تحت اللسان (٥- ١٠ دقائق) قبل القيام بأي عمل مجهد يتوقع له أن يسبب الما في الصدر.

و- يجب ان يحفظ الدواء في علبته الاصلية وليس خارجها.
ويحفظ في مكان بارد وجاف (ولكن ليس في الثلاجة) بعيدا عن الضوء والحرارة والرطوبة. كما يجب ان تعلق العلبة باحكام بعد كل عملية استخدام.

آ-اذا كانت العلبة الاصلية تحتوي على القطن فيجب اخراجه عند فتحها اول مرة و لايعاد اليها ابدا.

٧-ترمى الحبوب و لاتستعمل ابدا بعد مضي فترة شهرين من تاريخ فتح العلبة.

D-ISMN is the active metabolite of ISDN which is responsible for most of the activity: The advantage of ISMN is: **twice** daily dosing (or **once daily with m/r** products) which mean better compliance ⁽¹⁾.

E-Adverse effects such as headaches, facial flushing, and hypotension were more common after ingestion of grapefruit juice. It is postulated that compounds in grapefruit juice **inhibit cytochrome P-450 metabolism.** This interaction could increase both the efficacy and toxicity of some CCBs and other drugs.

F-Edema (which occurs typically **2 or more week**s after starting treatment) may response to simple measures such as elevation of feet during the night, or to a reduction in dosage, but if it persists, the CCB should be withdrawn ⁽²⁾.

Note: Edema may diminish upon conversion from a dihydropyridine CCB **to a nondihydropyridine** CCB such as Verapamil or diltiazem ⁽³⁾

G-Statins are usually taken in **the evening** to achieve peak serum level during the night, **when maximal cholesterol synthesis occurs**. However **atorvastatin** which has longer half life may be administered without regard to time of the day $^{(1)}$

H-In patient requires a course of antibiotic therapy(like Clarithromycin, erythromycin,) which may interact with Statins , The statin may be discontinued during this period and restarted when the course has been completed⁽¹⁾

Further reading

1-Nitroglycerin should not be used within 24 hours of taking sildenafil or vardenafil or within 48 hours of taking tadalafil because of the potential for life-threatening hypotension⁽⁷⁾.

References:

1-Applied therapeutics. the clinical use of drugs. 2-Martindale extrapharmacopia.

3-Calcium Channel Blocker-Related Peripheral Edema: Can It Be Resolved? Domenic A. Sica, MD J Clin Hypertens 5(4):291-294,297, 2003. 4-chronic angina .the pharmaceutical journal .2002. 5-textbook of pharmacotherapy. A pathophysiological approach. 2005

6-Walker .clinical pharmacy and therapeutics.

List of Normal Values for the Common Clinical Biochemical and Haematological Tests

Test	Normal Value Traditional units (T.U)	Conversion .F Traditional to international units (I.U)	Normal Value(I.U)	Conversion .F I.U to T.U
Biochemistry				
S. Albumin	3. 6-5. 2 gm/dL	10	36-52 gm/L	0.1
S.ALT(GPT)	< 20 U/L	1	<20 U/L	1
S.AST(GOT)	<15 U/L	1	<15 U/L	1
S. Total Bilirubin	0.3-1.0 mg/dL	17.1	5-17 micromol/L	0.06
S. calcium(total)	8.5-10.5mg/dL	0.25	2.1-2.6 mmol/L	4
S. cholesterol	150-250mg/dL	0. 0259	3.87-6.47 mmol/L	38.7
S. creatinine	0.7-1.4 mg/dL	88.4	62-124 micromol/L	0.0113
S. glucose (fasting)	65-110 mg/dL	0. 0555	3.6-6.1 mmol/L	18
S. potassium	3.5-5.3 meq/L	1	3.5-5.3mmol/L	1
S. total protein	6.2-8.2 g/dL	10	62-82 g/L	0.1
CSF. protein	15-40 mg/dL	0.01	0.15-0.4 g/L	100
S. Sodium	136-155meq/L	1	136-155 mmol/L	1
S. triglyceride	65-180 mg/dL	0.0133	0.86-2.4 mmol/L	75.3
S. Uric acid	3-7 mg/dL	60	180-420 mmol/L	0.0166
S. urea	20-45 mg/dL	0.166	3.3-7.5 mmol/L	6
Hematology				
Hb men	12-18 g/dL	10	120-180 g/L	0.1
Hb women	11.5-16.5 g/dL	10	115-165 g/L	0.1
PCV	0.4-0.45	100	40-45 %	0.01
WBC	4000-11000/mm ³	0.001	4-11 x10 ⁹ /L	1000
Platelets	150000- 400000/mm ³	0.001	150-400 x10 ⁹ /L	1000

⁷⁻pharmacotherapy principle and practice . 2007 ...