Cardiovascular system part II

1

الدكتورة زهراء توفيق
اسم المريض: زيد حسين ناصر العمر:50 سنة
Angina
(Serum creatinine 2mg/dl)
Rx
Atenolol (Tenormin®)

التاريخ / /2009

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-what is atenolol (selectivity and Solubility). What is the degree of renal impairment of the patient based on his S.creatinine? (See supplement H) is it necessary to reduce the dose of Tenormin? Why?
Q-3 based on your recommendation, the Dr. prescribed 50mg atenolol once daily instead of the 100 mg once daily what advisory label should be given to patient taking atenolol (and BB blockers in generals)? [ ]
Q4- after the use of Tenormin, the patient begins to have a new complaint of bradycardia, cold extremities and difficulties in walking (intermittent claudication). Rationalize? Would switching to pindolol or oxprenolol (Trasicor®) may alleviate these troublesome side effects? Why? [ ]
Q5-however, the Dr. decides to stop Tenormin and use calcium channel blockers. How would the Tenormin be stopped (see supplement I)? Why (BNF)? [ ]

2

الدكتورة سارة يشار زين
اسم المريض: سلام شنته العمر: 30 سنة
Thyrotoxicosis
Rx
Propranolol (Inderal®) 40mg tab.
1 tab T.i.d
التاريخ / /2009

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-what is Propranolol (selectivity and Solubility)? [ ]
Q3-knowing that the patient is intended for thyroidectomy. What is the idea behind the use of Inderal? In this condition [ ]
Q4-2 days later, the patient has new compliant of awakening many times during the night, nightmares, and fatigue. Rationalize? Would switching to Nadolol (Corgard®) may alleviate these troublesome side effects? Why? [ ]
Q5-the patient had used Nadolol without the previous side effects, but 1 month later the patient noticed an exacerbation of his psoriasis? Rationalize? Hint : see side effects [ ]
Q6-Could we used BBs safely if the patient has history of asthma and bronchospasm? What other contraindication are there for BBs? [ ]
Q7-what are the other uses of beta blockers? [ ]

3

الدكتورة شيماء يعقوب علي
اسم المريض: مينا هلال محمد العمر:66 سنة
heart failure

Rx
Carvedilol 3.125 mg tab
1 tab B.i.d after food.
Captopril 25mg tab
1 tab t.i.d
Moduretic® tab.
1 tab daily

التاريخ / /2009

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-Are there any benefits from using BBs in patients with heart failure?[ ].which BBs are used for this purpose (see the supplement J)
Q3-Regarding the use of BBs in heart failure: Is it recommended to start with low or high dose? And how we must increase the dose (slowly or rapidly)? (See Carvedilol dose) and why? (See the supplement K). Why Carvedilol is given with food? (See supplement K).
Q4-What is the composition of Moduretic ®? And what is the idea behind such combination? [ ]
Q5-what is the dose of Bisoprolol in heart failure (see BNF)[ ]

4

الدكتور عمر فائق
اسم المريض: محمد مكي حمد العمر: 37 سنة
Glaucoma

Rx
Timolol 0.5% eye drop
Apply one drop twice daily
Acetazolamide 250mg tab.
1tab. B.i.d

التاريخ / /2009

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-what is the main indication for timolol eye drop (one of the BBs) and acetazolamide (carbonic anhydrase inhibitors diuretic) for such patient (see section 11.6 treatment of glaucoma).council the patient about proper use of the eye drop. [ ]
Q3-knowing that the patient is an *asthmatic patient* on Salbutamol 100 mcg inhaler taken as required since 2 years. But recently he noticed a significant increase in his need to use the inhaler. ?what is the most likely cause? (see section 11.6 treatment of glaucoma the CSM advice [ ]
Q4-can we use acetazolamide safely if the patient is allergic to sulfonamide?
[ ]. See acetazolamide contraindications in chapter 11

5

الدكتور رنا حمزة نايف
اسم المريض زينب شاكر العمر:60 سنة

Angina and hypertension

Rx
Nifedipine (Adalat®) 20mg m/r tab.
1 tab B.i.d
Aspirin 100mg enteric coated tab
1tab. daily.
التاريخ / /2011

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-what are the main indications for nifedipine [ ]? What is the major site of action (vessel or myocardium) [ ]? Do you recommend maintaining the patient on <u>one brand name of m/r</u> nifedipine? Why? [ ]
Q3-Why does the short acting (i.e. the immediate release) formulation of Nifedipine are not recommended for Angina or long –term management of hypertension? (See section 2.6.2 and nifedipine side effects also).
Can we use it for quick reduction of BP in hypertensive urgencies by biting the soft gelatin capsule (contain nifedipine in liquid form) and putting it under the tongue (i.e. give it SL)? (See supplement D also)
Q4-Counsel the patient about side effect associated with vasodilatation (See 2.6.2)?
Q5-the patient return to the pharmacy in the 2nd day saying that the tablet had been passed unchanged with the stool? (What will you told him)?
Q6-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
<u>Appendix 1 under grapefruit juice?</u> (See supplement E also) [ ]

6

الدكتوركمال منصور
اسم المريض:عباس خيون العمر: 45 سنة

Angina

Rx
Amlodipine 10mg tab
1tab.daily.
Suscard®Buccal tab.PR
التاريخ / /2011

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-what are the differences between Amlodipine and Nifedipine? [ ]
Q3-3weeks later the patient develop ankle edema? Rationalize and what are your recommendations for the physician?(See supplement F also)
Q4-would the use of diltiazem is associated with lower incidence of this side effect? (See supplement F also)
Q5-Where should the Buccal tab. Be placed? See suscard counseling in BNF.

7

الدكتورتحسين علي
اسم المريض:سمير فرحان العمر: 59سنة
subarachnoid hemorrhage
Rx
Nimodipine (Nimotop®) 30mg tab.
60mg (i.e. 2 tablets) every 4 hours.
التاريخ / /2011

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-why nimodipine is used following subarachnoid hemorrhage? How often treatment with it should be start after hemorrhage? And for how long it continued? [ ]. See supplement G also.

8

الدكتورمهدي سليم
اسم المريض:مهند اكرم
العمر: 47سنة
Supraventicular arrhythmia
Rx
Verapamil 40 mg tablet
1tab. t.i.d
التاريخ / /2011

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-Why does Verapamil (but not nifedipine or other dihydropyridine CCBs) is used for arrhythmia? [ ]. What are the other indications for it?
Q3-what is the common GI side effect of Verapamil? [ ]
Q4-can we use Verapamil or diltiazem safely in patient with heart failure or in combination with beta-blockers? Why? [ ]

9

الدكتور زيد عبد الكريم
اسم المريض: ستار خضير
العمر: 69سنة

Benign prostate hyperplasia
(BPH)

Rx
Terazocin 2 mg tab
1 tab. daily

التاريخ / /2011

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-Why does alpha-blockers (like Terazocin) are used in BPH? See section:7.4.1(drugs for urinary retention) [ ]
Q3-At what time of the day (morning, or bedtime) the first dose of alpha –blockers should be given? Why? And what can the patient do if symptoms such as dizziness, fatigue, or sweating occur? Hint: see chapter 7 under Terazocin dose: first dose effect. [ ]

10

لدكتورراسم وليد
اسم المريض: شراد عطوان العمر:62سنة

Angina associated with coronary vasospasm (prinzmetal's angina) also called (variant) angina

Rx
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

Q1-To which group the drug in the Rx belong to? Give it main S/E, cautions, C/I, and patient advice for its use.
Q2-which CCBs are valuable In this form of angina? [ ]
Q3- Do you recommend to maintain the patient on <u>one brand name of m/r D</u>iltiazem? Why? [ ]

Supplement

ملاحظة:ان القسم الاكثر من المعلومات الواردة هي للفهم (اي تفهم الفكرة العامة لها) وليست للحفظ

Beta blockers

***The most commonly available BBs in Iraq now are :Atenolol (Tenormin®), Oxprenolol(Trasicor®), Nadolol (Corgard®), Pindolol(Visken®),Metoprolol, Propranolol(Inderal®), Carvedilol ,and Bisoprolol(Concor®),**

Criteria	Beta blockers
Water solubility	Atenolol , Nadolol ,bisoprolol
Lipid soluble	Oxprenolol, Metoprolol, Propranolol, Carvedilol
Intrinsic sympathomimetic activity(ISA)	Oxprenolol, Pindolol
B1-Selectivity	Atenolol , Metoprolol, Bisoprolol
nonselective	Oxprenolol, Nadolol, Pindolol , Propranolol
Mixed alpha and beta blocker	Carvedilol

G- (قراءة فهم بدون حفظ)

Degree of impairment	Serum creatinine(mg/100ml)
mild	1.7- 3.4
moderate	3.4-7.9
severe	7.9>

D-When administering IV dose, toxicity is <u>rates related, and therefore, max</u>. rate is:
20mg /min if the dose is less than 100mg or
4mg / min if the dose is greater than 100mg (mix with 50-100ml IV fluid)[3]

E-(قراءة فهم بدون حفظ)
***It is usually given with food to increase bioavailability and decrease the GIT disturbances[3]**
H- The dosage should be reduced by 50% with rechecking of the disease state at 2 weeks
E.g. to stop Tenormin in patient taking 100mg once daily:
50% reduction(i.e. use 50mg once daily)------2 weeks disease checking---if the disease is still controlled------ 50% reduction(i.e. use 25mg once daily)------2 weeks disease checking ---if the disease is still controlled------stop the administration and recheck the disease in 2 weeks[3].

I-(قراءة فهم بدون حفظ) [2]

Systolic heart failure: (60-70% 0f heart failure cases) result from any disorder that affect the ability of the heart to contract(systolic function) it almost always caused by factors causing the heart to fail to pump. Causes include generalized cardiomyopathy (deterioration of myocardial muscle function) secondary to ischemic heart disease, damage to heart muscle after MI…

Diastolic heart failure: (30-40%) in this form cardiac muscle contractility is not impaired but there is restriction in ventricular filling. It is caused by ventricular wall hypertrophy, mitral or tricuspid valve stenosis…

Note: systolic and diastolic frequently coexist.

The use of beta blockers in systolic heart failure:

Systolic heart failure (decreased cardiac contractility) ----------activation of sympathetic nervous system (SNS) ------increased cardiac contractility (initially it is a favorable effect)

However long term and excessive stimulation of SNS-------down regulation of *B1* receptor, and cause myocardial cell loss.

Based on this observation, treatment with BBs may be protective.

Carvedilol should be taken with food to minimize the risk of orthostatic hypotension [5]

J-Carvedilol, Bisoprolol, and metoprolol controlled released/extended release (CR/XL) (initial dose 12.5-25mg qd and the target dose is 200mg qd) are the best studied BBs in heart failure.

E-Adverse effects such as headaches, facial flushing, hypotension and lightheadedness were more common after ingestion of grapefruit juice. Orange juice did not have these effects. 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-it 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]

References:

1-Applied therapeutics. The clinical use of drugs.

2-textbook of pharmacotherapy. A pathophysiological approach. 2005

3-Drug therapy decision making guide.

4-drug information handbook.2004

5- Neofax 94