**DT 4th**

**Course Title: GeneralPharmacology II**

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**Note:**

**Attempt all questions**

**Each question carry equal marks**

**Pay attention to every point of question**

**Give to the point answers**

**Extra detail may leads to marks deduction**

(a) Differentiate between type I and type II diabetes mellitus

(b) As per your opinion which of the insulin delivery device is more effective and why?

1. Explain the role of vitamin K in blood clotting and treatment of bleeding disorders
2. What does thrombolytic agents mean? Explain with example
3. Explain the effects and adverse effects of organic nitrates in angina pectoris.
4. Write down the treatment algorithm for improving symptoms of stable angina.
5. Differentiate between primary and secondary hypertension
6. Explain the effect of renin on hypertension
7. What is the importance of pharmacological treatment of hypertension
8. Differentiate between right heart failure and left heart failure
9. Summarize the pharmacotherapy of heart failure

***ANSWERS***

**Qno 1(i):**

**Differentiate between type I and type II diabetes mellitus**

**Type I diabates mellitus:**

Result from the pencreas failure to produce enough insulin.

A form of chronic hyperglycemia caused by immunolgic destruction of pencreatic beata cells.

Type I diabetes requires treatment with insulin.

**Type II:**

Begins with insulin resistance a condition in which cell fail to respond to insulin properly.

Or A chroinc hyperglycemia intialy caued by resistance to insulin, often progresses to insulin defeciency.

The early stage of type II diabtes usually can be cantrolled with noninsulin antidibatic drug how ever patient in later stages of typeII diabates often requires the addation of insulin to their drug regmin.

**Qno1(ii):**

The standard mode of insulin therapy is subcutaneous injection with conventional disposable needles and syringes. The other More convenient means of administration are partebal pen sized injectors, it is used to facilitate subcutenaeous injection . it used and more effective because it avide the need for multiple daily injections and provide flexibility in the scheduling of patient daily activity.

**Qno2(i):**

**Explain the role of vitamin K in blood clotting and treatment of bleeding disorders**

There are two main kinds of vitamin K

1. Vitamin K1 (phylloquinone) comes from plants, especially lafy green vagitables like spinach and kale.
2. Vitamin K2 (menaquinone)is naturaly created in the intestinal trac and works similarly to k1.

Vitamin k plays an important role in coaglation, better known as blood clotting .

Cloatting is a process that helps prevent excessive bleeding both insaid and out said the body.

Your body needs vitamin K in order to produce the proteins that go to work during the coltting process.

If you re vitamin k deficient your body does not have enough of these proteins. The telltale singn of vitamin k deficiency is bleeding too much.

**Qno2(ii):**

**What does thrombolytic agents mean? Explain with example**

Answer:

A drug that is able to dissolve a clot (thrumbs)and reopen and artry or vain.thrambolytic agent may be used a treat a heart attack, stoke,deeep vain thrombosis (clot in deep vain ).pulmonary embolism,and occlusion of a periperal artery or indwelling catheter.

**1:Tissue plasmenogen activator:**

It is an enzyme that directly converts plasminogen to plasmin . It has little activity unless it is bound to fibrin which in theory should make it selective for the plasminogen that has already bound to fibrin and should result in less danger of widespread production od plasmin and spontaneous bleeding .

**2:Streptokinase :**

Streptokinase is obtained from bacterial cultures. Although not itself an enzyme streptokinase forms a complex with endogenous plasminogen; the plasminogen in this complex undergoes a conformational change that allows it to rapidly convert free plasminogen into plasmin.

**Qno3(i):**

**Effects and adverse effects of organic nitrates in angina pectoris**

**Effect** : Therapeutic doses :has 2 major effects

**(i):Dilation of the large veins resulting in pooling of blood** in the veins which diminish the preload and reduces the work of the heart

**(ii):Dilates the coronary vasculature** providing increased blood supply to the heart muscle

* ↓ Preload
* ↓ Afterload
* Relieving vasospasm
* Redistribution blood flow

The total effect is a decrease in myocardial oxygen consumption because of decreased cardiac work .

**Adverse effects:**

Nitrates can cause **Headache** in about 30% - 60% of patients because of the pronounced vasodilation.

High doses can cause **postural hypotension, flushing &Tachycardia**

**Qno3(ii):**

**Treatment algorithm for improving symptoms of stable angina.**

Stable ischemia heart deasese: (i)Anginal sysmptoms present:

Guidline-directed medical therpay including emphasis on lifestyle modifiction for cardiovascular risk reduction.

 (i)sublingual nitroglycerin for imadiate relief.

 (iii)beta blocker. (if indequte relief after titration

 Add

(iv)calcium chanel blocker. or (v)long acting drug if inadequte relif

 Add

 (vi)ranolazin

**Qno4(i):**

**Differentiate between primary and secondary hypertension**

**Primary Hypertension:**

* Primary hypertension is more common in people
* It has no single known cause
* It is caused to the people with gentic factor
* The pressure aginst the blood vessles in effected by cardiac output
* Th blood vessels are not needed to contract

**Secondary Hypertension**

* In secondary hypertension BP is raised due to a known underlying cause:
	+ Renal disorders (e.g. chronic pyelonephritis, diabetic nephropathy).
	+ Vascular disorders (e.g. coarctation of the aorta).
	+ Endocrine disorders (e.g. primary hyperaldosteronism).
	+ Drugs (e.g. alcohol, cocaine)
	+ Miscellaneous causes (e.g. scleroderma, obstructive sleep apnoea).
* A search for secondary hypertension is only suggested by history, physical examination or routine tests indicate abnormalities.
* Investigations for secondary hypertension are not cost effective.

**Qno4(ii):**

**Explain the effect of renin on hypertension**

Renion is an enzyme, or protien, that cantrols the bodys blood pressure.

It is made bye the kidney and can be measured a problem with the adrenal glands and their production of the harmones aldosterone.

**Effect on hypertention:**

* Inhibit genaration af angiotention II
* Inhibit degrdation of bradykinin which is potent vasodilator.
* Dialates both artry and vain
* Blood flow to vital organs increses
* Decrese aldesterone production indirectly
* Low renin levels therfore are associated with symptoms of hypertantion and may also correlate to low potassium in a condition known as conn s syndrome.

**Side effect:**

* High blood pressure caused by hyperaldosteronism include, Cough. Diarrhea or stomach pain. Heartburn.

**Qno4(iii):**

**What is the importance of pharmacological treatment of hypertension**

Hypertantion is a dangerous disorder and the treatment of it is important pharmacological treatment is necessory for hypertantion because when treatment is not performed proferly it profer time then it can lead to the following many other disorders like,

Brain strokes hartattacks, heartfaliure, kidney deases.

The hypertation is very necessory because it demage brain kidney heart etc.

**Qno5(i):**

**Differentiate between right heart failure and left heart failure**

**Left heart failure:**

The left atrium and ventricle are unable to adequately handle the blood returning from the lungs. This causes pressure to build up in the pulmonary veins, and fluid accumulates in thelungs. Consequently, left heart failure is associated with pulmonary edema.

**Right heart failure:**

The right atrium and ventricle are unable to handle blood returning from the systemic circulation. This causes fluid to accumulate in the peripheral tissues, and ankle edema andorgan congestion (liver, spleen) are typical manifestations.If both left and right heart failure occur simultaneously, congestion is found in the lungs as well as the periphery.

**Qno5(ii):**

**Summarize the pharmacotherapy of heart failure**

The goal of pharmacotherapy for heart failure are to alleveiate symptoms,slow are reverse deteriotion in my cardial function, improve patient functional status and quilty of life, minimize hospitaliztion and to reduce disease mortilty.

Medical care for heart failure includes mangment of contributing factors and associated condition, lifestyle modifection,pharmacologic, and invasive interventions to limit and reverse the cardinal manifestations.

Lifestyle modification primerly focuses on smoking cessation, restriaction of alcohal and salt.

**The End**