**DPT 6th**

**Course Title: Pharmacology 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**

2. How cryotherapy is effective in pain and edema? Explain the mechanism of agents that synergize and antagonize its effect with appropriate example.

**Ans :- Cryotherapy in pain and edema :-**

Cryotherapy is effective in pain and edema it is because by applying cold packs on any painful part or swelled part it causes the constriction of blood vessels due to which the which the blood flow reduces to this part and also reduce tissue metabolism which causes reduces of pain and edema.

**Mechanism of agents that synergize and antagonize its effect :-**

Cold/ice packs, ice massage , cold bath and vapocoolant spray. These are the agents which are responsible in synergistic and Antagonistic effects.

When we apply these modalities or agents on any injured part with the use of synergistic and antagonistic drugs.. The anti-inflammatory steroids (glucocorticoids) and non – inflammatory analgesics ( aspirin and NSAIDs) are the synergistic drugs which can dilate vessels and can be beneficial or harmful.

While the peripheral vasodilators are the antagonistic drugs which can be worse and reduce vasoconstriction.

1. What is the therapeutic application of systemic heat? What agents can affect its desired therapeutic response?

**Ans :- Therapeutic application of systemic heat:-**

Large whirlpool and hubbard tank are the agents which can reduce and decrease the muscles and joints stiffness in the part of the body by dissipating heat due to increasing blood flow and sweating.

**Agents :-**

Opioid and non opioid analgesics and the skeletal relaxants are the synergistic drugs which can increase its effects and can block calcium channels.

1. What is the main function of menstrual cycle? Enumerate its phases, write down each of the hormone name only that is dominant in each phase, explain termination phase in detail

**Ans :- Function of menstrual cycle :-**

The main function of the menstrual cycle is to make pregnancy possible and is responsible for the production of oocytes and also thickens the uterine walls because of applying rich blood supply.

**Enumerate phases :-**

1. Follicular phase
2. Ovulation
3. Luteal phase
4. Corpus luteum regression and termination of the cycle

**Name of Hormone dominant in ease phase :-**

1. **Follicle phase –** Follicle stimulating hormone ( FSH)
2. **Ovulation –** Gonadotrophin-releasing hormone ( GnRH)
3. **Luteal phase** – Chorionic gonadotrophin ( HCG)
4. **Corpus luteum regression and termination of the cycle –** ( LH) and ( FSH)

**Termination phase :-**

It is the last phase in which the the corpus luteum degrade after seven days and can not release progesterone and estrogen due to which the uterine lining and vascularization starts breakdown which cause bleeding and it is called menstrual bleeding which indicate ending of one cycle and the starting of another cycle.

2. Explain the effects glucocorticoids on Glucose, Protein, and Lipid Metabolism.

**Ans :- Effect of glucocorticoids on glucose :-**

Glucocorticoids increase blood sugar level and the decrease insulin level in the lever due to which glucose accumulate in the blood which causes increase in blood sugar level. It is also responsible in body stress and also responsible in decreasing inflammation.

**On protein :-**

Glucocorticoids effects on protein involved to reduce protein storage in all body cells except of liver which cause increase protein catabolism and decrease the production of protein due to which more protein breakdown occurs and more amino acid releases.

**On lipid :-**

The effect of glucocorticoids on lipids metabolism is to increase the lipolysis which causes increase in circulating free fatty acids due to which the triglycerides and free fatty acid utilization decreases.

1. How mineralocorticoids maintain the plasma volume?

**Mineralocorticoids on plasma volume :-**

Whenever there is increase in Angiotensin II in our body it also increases aldosterone in our body. Angiotensin II is a system which maintain blood pressure in our body. When there is decrease in blood pressure in our body this system start activating and produce Angiotensin II factor which makes the vessels constricted and increase blood pressure and facilitate sodium and water retention which maintain the plasma volume.

Q4.

1. Differentiate between type I and type II diabetes mellitus

**Ans ;- Type 1 and type 2 diabetes mellitus**

|  |  |
| --- | --- |
| **Type 1** | **Type 2** |
| No insulin is produced | Don’t produce enough insulin |
| Onset is sudden | Onset is gradual |
| Body become weak | Get weight |
| No known prevention method | Prevented by healthy life style |
| Develops at childhood or any age | Develops in adults (45yr) |
| Symptom is fatigue and weakness | Symptom is dry mouth and blurry vision |

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

**Ans :-** As per my opinion the insulin syringes device is the most effective device as it can pass easily through the skin. The syringe has a cap which cover the needle. It consist of measuring lines and can easily be seen. These syringes are found in several size and Its advantage is that they are cost effective and easily available

Q5.

1. Define iontophoresis, explain the mechanistic approach behind iontophoresis.

**Ans :- Iontophoresis :-**

It is the process in which the drugs are delivered through the skin or tissues with the use of local electrical current.

**Mechanism** **:-**

The drugs molecules or gel is applied on the skin. There will be two electrodes one is positive charge cathode and the other is negative charge anode which is connected to the two sides of the skin. The positive ions is repelled from a positive charged due to which the positive ions moves towards the negative charge which creates pressure on the skin and make changes in the skin and enhance drug absorption to the blood vessels through the skin.

1. Explain the general mechanism of hormone release and inhibition

**Ans :- Mechanism of hormone release and inhibition :-**

When there is biological need or any stimulus found in our body it needs a recognition as its required stimulation or inhibition. If there is need of stimulation it produce signals where synthesis or release of hormones take action after that release the hormones is released from secretory cells and delivered to targeted cells. The hormones interact with the targeted cells where it starts degrading after producing its effects and send feedback signals to centers to starts inhibition.