**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**

1.
2. **How cryotherapy is effective in pain and edema**?

Cryotherapy is more effective in reducing pain nd edema depends on the type nd nature of injury.it can be used before or after exercise. In combination of cryotherapy with rehabilitation its more effective.cryotherapy shows its effects in many ways eg by reducing blood flow to an injured area cuz of which is reduced . it also act as analgesic. Reducing muscle spasm nd reducing tissues metabolism cuz of reducing blood flow to the injured site resulting in reducing pain.it can also reduce acute injury which shows an immediate pain.

The most common type of cryotherapy is an ice pack. Its shows compart at thin layer of the skin nd shows its effect.another type is massage which also reduce pain nd swelling. The injured area is gently massaged nd thus u ll get the promenant result.

**Explain the mechanism of agents that synergize and antagonize its effect with appropriate example.**

**Systemic heat:**

It decrease muscles nd joint stifness in large area of the body.if we give skeletal muscle relaxant it increases its effect but sometime it cause severe hypotension.

**Ultravoilet radiation**.

It increase wound healing if u ll give antibiotic it will synerfise its effect. Can also cause photo sensitivity.

**TENS:**

Its used to decrease pain if we administer opiods or Nsaids with it so it will show double effect.

**Functional neuromuscular electrical stimulation.**

Its used to strengthen skeletal muscle nd endurance. If patient also use skeletal muscle relaxant so it will anagonize its effect.

1. **What is the therapeutic application of systemic heat?**  By increasing the temperature of skin or soft tissue the blood increased by vasodilation. The metabolic rate and the tissue extensibility will also increase .heat increase oxygen uptake and accelerate tissue healing .it also increase the activity of destructive enzyme such as collagens and increase the catabolic rate.

Systemic heat can mostly used in rehabilitation the therapeutic effects heat include increasing the extensibily of collagen tissue .

 **What agents can affect its desired therapeutic response?**  Agents that can affect its desired therapeutic response :

 There are some agents

 which can effect the desired function of systemic heat is NSAID oropoid .if we give it the same time withsystemic heat so it will increase its effect.and will cause hypotension .

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.

Answer. Main fumction of menstrual cycle:

To stimulate overies to produce an ovam for fertelization nd prepares the endometrium of uterus for ovam implantation.

Phases of menstrual cycle:

1. .follicular phase. In this phase FSH is released by anterior pituitory which is dorment nd other hormone release in this phase is estrogen. 2).ovulation. LH hormone in this phase is dorment but a smaller FSH secretion also occurs in this phase. 3).luteal phase. Dorment estrogen nd progesterone but vascular nd glandular secrection also occurs. 4).corpus lutum regression nd termination of cycle. If fertilization doesnt occurs the carpusletium start regress cuz of continued absence of gonadotropins(LH,FSH)finally the endrometrium begins to slough off nd bleeding starts.(The female reproductive cycle).onset of menstrual bleeding shows the end of one cycle nd the beginning of the next one.

Q.3:(A**)Explain the effects glucocorticoids on Glucose**, Protein, and Lipid Metabolis

The glucocorticoids(cortisole nd cortecosterone) primarly control glucose metabolism nd prepare the body to deal with stress. On other hand it it decreases the inflamation nd supress the immune system.

**Its effects on protien**: it inhibit protien syntheses nd stimulate protien degredation in skeletal muscles. In varios catabolic condition also helpfull in the development of muscle atropy. Muscle protient break down is done by ubiquitin,proteasome dependendent proeolysis through calcium dependendent protien degradation may also be involed.

**Its effects on lipid metabolism**: GCs is catabolic in nature liberte energy during the tim of strees .its effect on adipose tissuse is conflicting cuz patient with elevated GHs present with central adiposity.it also increase novo lipid production.it also increase the amount of fatty acds in circulation.also has antilypolytic effect on adipocytes increase lypolysis after 48hrs of exposure.although the evedence is that it increases lipolysis.

1. **How mineralocorticoids maintain the plasma volume?**

Mineralcorticortid maintain the electrolyte concentration,,the elecrolye concentration of extra cellular fluid aldosterone which is the most important minralocrticide maintain sodium balance by reducing exertion of sodium from the body .and also stim ilate rebsoption of sodium by the kudney . and aldosterone secretion is stimulated by rising blood of k. low blood Na and decresing blood volume and pressure.

 Adrenocorticoted also maintain maintain the osmolarity so minrelocoticoted maintain normal blood volume and promote sodium and water retention and increase urinary execretin of potassium and hydrogen ion. From the dissection we noticed that blood volume can not be maintained without minralcortiscosteroids.

Q4

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

|  |  |
| --- | --- |
| **Type 1:**A form of chronic hyperglycemia caused by immunologic destruction of pancreatic beta cells | **Type 2:**A form of chronic hyperglycemia initiallay caused by resistance to insuline often progresses to insuline deficiency. |

Future Type 1 Type 2

Age of onset Any young age Mostly in adult

Onset Sudden Gradual

Insulin level Low or absent Normal decrease or increase

Body habits Thin or normal Obese

Prevalence Less prevalence More prevalence

Autantbodies Present Absent

Control Can be controlled with out injection Some times possible to control it with medicine .

Treatment Insulin injection or pump are treamet Initaily can be treated with out medication or tablet

1. **As per your opinion which of the insulin delivery device is more effective and why?**
2. The effective way of insulin delivery is the syringe because when we inject it so it become the part of blood stream and produce its effect in less period of time .insulin are availible in the form of .Ripid acting insulin ,reached to blood stream within 15 min and working for 4 hrs .short acting insulin ,enter into blood in 30 min and works 6 hrs .itermediate acting ,reached into blood stream with in 2 to 4 hrs and effective for 15 hrs .long acting ,work with in few hrs and keep glucose level even for above 24 hr.

**Q5.**

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

Ionto means ion nd phoresis means trasfer:introduction of ions into the body by the use of direct electric current.it uses electrical current to transport ions into the tissues.

**Mechanism:**

The basic principle of iontoporetic drug develery is that like chareges repel like charges so the drug ions are repelled or pushed into the underlying tissue.

When direct current is applied to ionized drug solution the ions that have the same charge as the electrode are repelled by the electrode nd are divelered through the skin. Sweat ducts are primery paths by which ions move through the skin.

1. **Explain the general mechanism of hormone release nd inhibition.**

Hormonal stimuli refers the release of hormone in responce to another hormone. A number of endocrine glands release hormones when stimulated by another hormone released by endocrine gland.for example hypothalamus produces hormones that stimulate the anterior portion of pituitory gland.the anterior pituitory in turn releaese hormone when stimulate the thyroid gland to produce t3 nd t4. As the blood concentrations of of t3 nd t4 rises they inhibit both the pituitary nd hypothalamus in a negative feedback loop.

When there is need of hormone through signal hormone release occurs into the blood stream nd reaches to its specific site but when there is large concentration of hormone release again signal is send to that specefc gland nd homones inhibition occurs(no more release of hormone).

  **End...**