PHARMACOLOGY - MID

بسم الله الرحمن الرحيم

Past Papers

﴿ وَإِن تَتَوَلَّوْا يَسْتَبْدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوٓا۟ أَمْثَٰلَكُم ﴾

اللهم استعملنا ولا تستبدلنا

Pharmacodynamics

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Pharmacodynamics Lecture 1

Very important note: It's Dr. Samar's first time teaching the pharmacodynamics part of the *Introduction to Pharmacology* course, so you won't find any questions written directly by her. She also mentioned that most of her questions are clinical case-based. However, we have collected the most related past paper questions to help ensure your understanding.

(2022)

Affinity is:

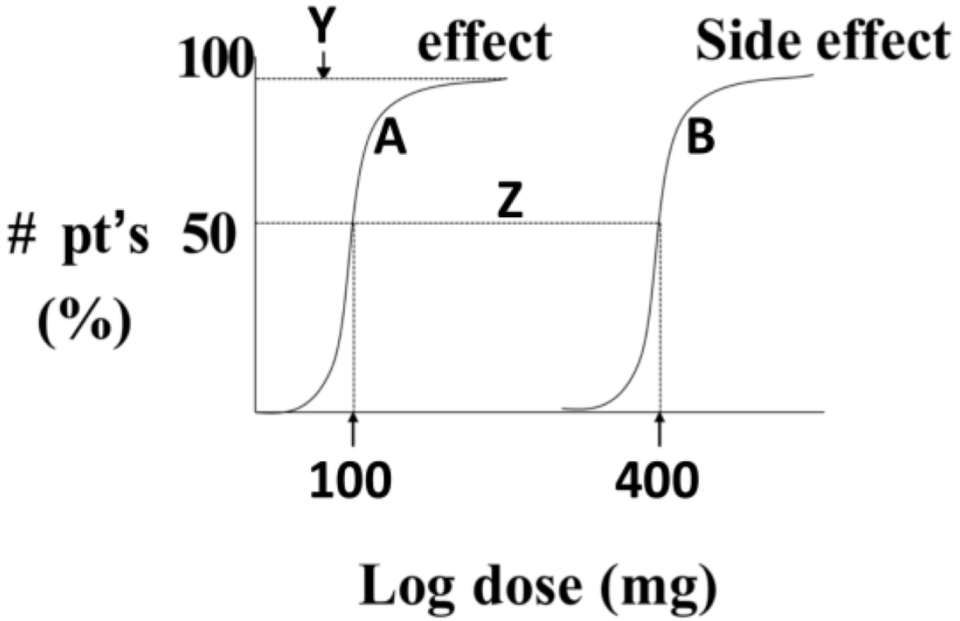
A. How tightly a drug binds to plasma proteins
B. How tightly a drug binds to a receptor

Ans : B

(2022)

Based on this graph, answer the following questions:

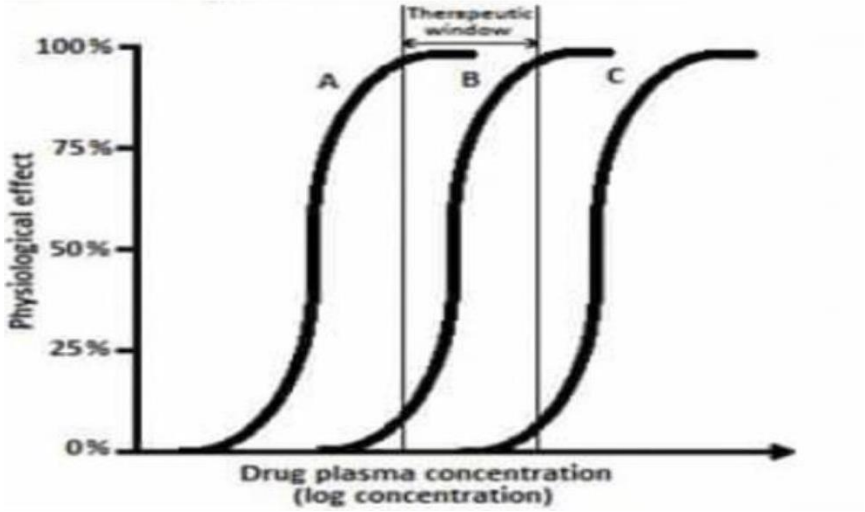
A. If curve A represents a drug and curve B represents its side effects, what does line Z represent:
B. What does the value of 400 represent?
C. According to previous question, what is the therapeutic index for the drug?
D. What does line Y represent ?



Ans :
A :Theraputic index (theraputic window)
B:Lethal dose (LD)
C: 4
D:intrinsic activity

(2021)

Given the information in the figure below, which of the following statements is correct:



A. Drug A has the most appropriate pharmacodynamic properties of the three drugs shown as it reaches maximal efficacy within the therapeutic window.
B. Drug B has the most appropriate pharmacodynamic properties of the three drugs shown as a range of its plasma concentrations are within the therapeutic window.
C. Drug C has the most appropriate pharmacodynamic properties of the three drugs shown as non-toxic effects are achieved within the therapeutic window
D. All three drugs have appropriate pharmacodynamic properties

Ans : *B

(2021)

One of the following is not true about pharmacodynamics:

A. It studies the biochemical and physiological effects of drugs and their mechanism of action.
B. It studies the relationship of drug concentration to drug effect.
C. it studies the absorption and distribution of drugs.
D. It studies drug-receptor interactions

Ans : C

(2021)

Example of a tyrosine kinase receptor:

A. Steroid receptor
B. Glucagon receptor
C. Epinephrine receptor
D. Insulin receptor

Ans : D

(2020)

In the following, what describes affinity?

A. The tightness that drug bind to receptor
B. Irreversible transport from site of administration to the bloodstream
C. Drug leaving the blood to peripheral tissue
D. Proportional to drug concentration in plasma (First order kinetics implied)

Ans : A

(2020)

Pharmacodynamics involves:

A. Info about main mechanisms of drug absorption
B. Info about unwanted effects
C. Info about biological barriers
D. Info about excretion of a drug from the organism.

Ans : B

(2020)

Therapeutic index of a drug reflects its

A. Relative safety
B. Duration of action
C. Onset effects
D. Potency

Ans : A

(2020)

Which of the following statements about drug receptor interactions is TRUE?

A. An agonist interacts with its target receptors and produces a biological effect
B. A reversible antagonist shifts the dose response curve to the right without affecting the maximal response
C. Partial agonist are drugs that have affinity for receptors with moderate efficacy
D. All of the above

Ans : D

(2020)

Variation in pharmacological responses to drugs among individuals can be attributed to?

A. Drug-Drug interactions
B. Sex
C. Age
D. All of the above

Ans : D

(2020)

Which of the following statements is CORRECT?

A. If 10 mg of drug A produces the same response as 100 mg of drug B, then drug A is more efficacious than drug B
B. Skipping a dose is not important in calculating the time to reach steady state
C. Generally, Reduction in the oxidative metabolism through cytochrome P450 system result in a reduction in the drugs clearance

Ans : C

When two drugs with the same effect give together and produce an effect that is greater in magnitude than the sum of their effects when the drugs are given individually, we call this? (2020)

A. Competitive drug effect
B. Synergic drug effect
C. Additive drug effect
D. Potentiation drug effect

Ans :B

(2020)

Receptors are macromolecules that:

A. Are designed to attract drugs.
B. Are resistant to antagonists
C. Exist as targets for physiological neurotransmitters and hormones
D. Are only on the outer surface of cells
E. Are only inside of cells

Ans :C

A 65-year-old man suffering from osteoarthritis has been taking Naproxen 500mg twice a day for one month. For some reasons, the physician decided to try another drug that work on the as same receptor and prescribed him celecoxib that has 5 times more potent than naproxen. Which of the following was most likely the dose of celecoxib prescribed to the patient? (2020)

A. 10mg
B. 100 mg
C. 50mg
D. 1000 mg
E. 5 mg

Ans :B

(2020)

Which of the following statements is correct?

A. The pharmacodynamic of drugs in children and the adults is always similar as the drug targets does not differ with age.
B. The increase in total body fat usually results in an increase in the half-life of water soluble drugs.
C. Generally, Reduction in the oxidative metabolism through cytochrome P450 system result in a reduction in the drugs clearance.
D. The metabolism of drugs in children is always less than that in adults.
E. If 10 mg of drug A produces the same response as 100 mg of drug B, drug A is more efficacious than drug B.

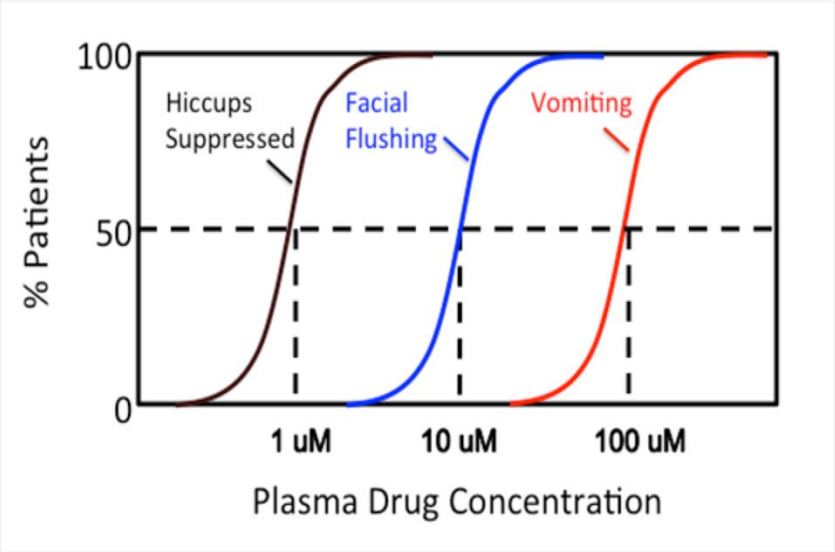
Ans :C

(2020)

Potency is

Ans :amount of drug required to initiate an effect

Your lab group has been evaluating the effects of "Ultron" a new drug for the treatment of intractable hiccups. When administered over a wide concentration range, three dose response relationships were defined in test subjects. Using facial flushing as an unwanted side effect, what would be the estimated therapeutic index for Ultron? (2018)



A. 0.1
B. 100
C. 10
D. Can't determine

Ans :C

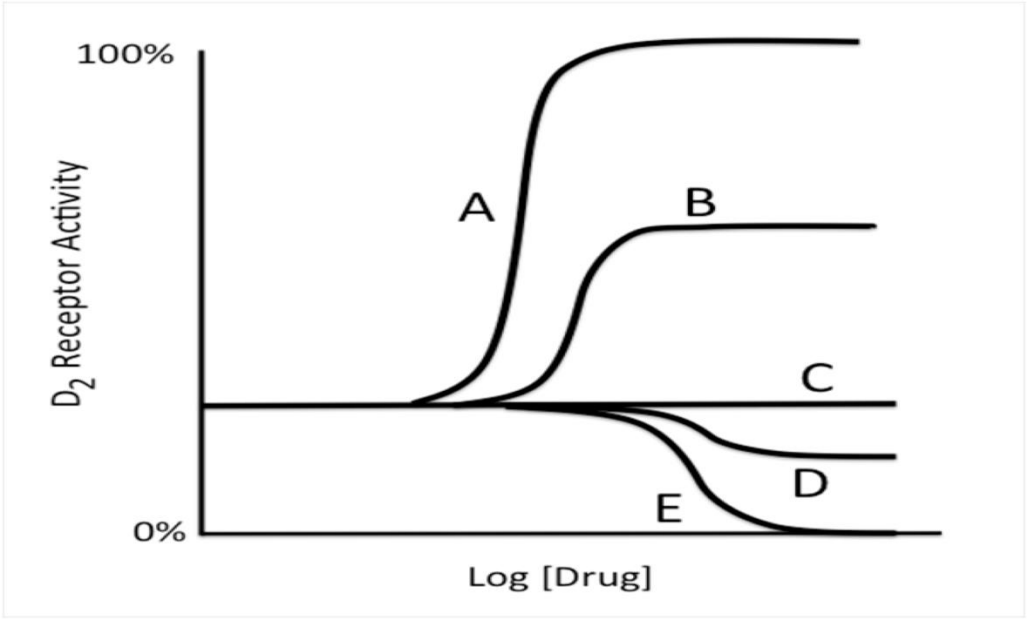
(2018)

Digoxin is a drug that has been used to treat systolic heart failure for over 200 years. It has a therapeutic index value of 2. How many daily doses of digoxin will the average patient have to take at one time to have a 50:50 chance of developing toxic side effects?

A. One
B. Two
C. Three
D. One and a half
E. I don't know

Ans :B

Drugs with low efficacy bind to receptors but do not fully activate them. Such "partial agonists" can act as either as a weak agonist (in the absence of a full agonist), or as a competitive antagonist (if a full agonist is present). Which curve best reflects the effect produced by this type of agonist when it is administered alone. (2018)



A. A
B. B
C. C
D. D
E. E

Most probably not included in this lecture's material since we didn't discuss competitive and non competitive antagonists yet ! however , it is good to try to solve it (it's easy)

Ans :B

(2018)

What is correct concerning TI:

A. A safer drug has a higher therapeutic index
B. TI might be equal to 1
C. The more the unwanted adverse effect, the ration decreases
D. You are in danger if you take 1.8 mg/ml of Digoxin which has the margin of safety(0.8-2)

Ans :A

(2018)

A patient comes to the ER having his quadriceps muscle constantly contracted, you should give him:

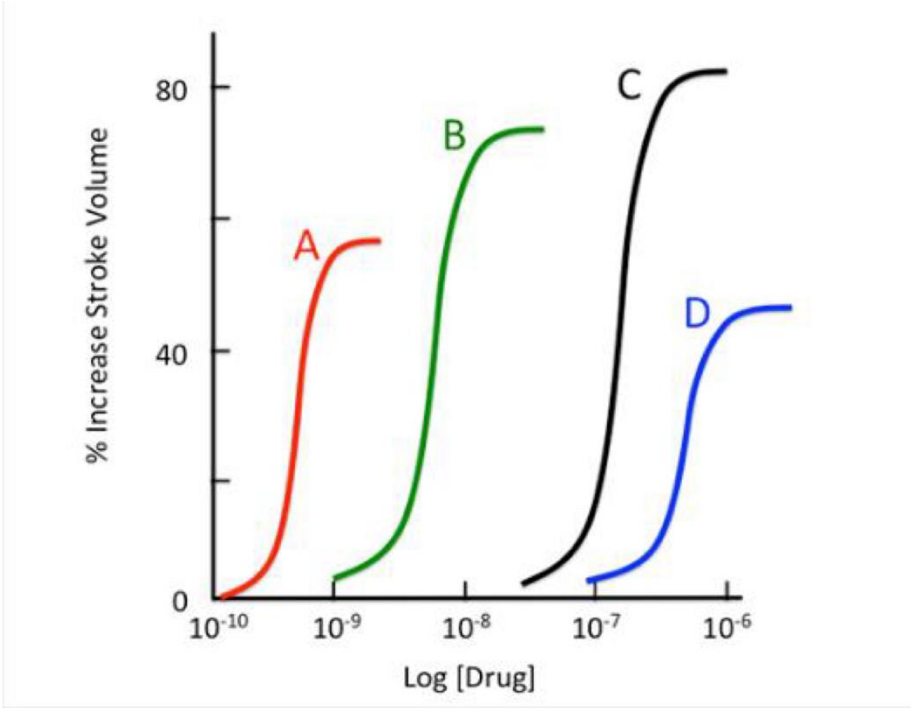
A. Norepinephrine to stimulate the sympathetic nervous system
B. An antagonist for Norepinephrine
C. Beta 2 blocker
D. None of the above

Ans :B

(2018)

Dose response data was collected during the preclinical testing of four drugs for the treatment of acute heart failure

A. Which drug studied was the most efficacious?
B. B. Of the four drugs shown, which is the most potent?



Ans :
A:C
B:A

A newly developed medication for pulmonary hypertension targets blood vessels in the lungs, but does not affect blood vessels in the liver. Which of the following is most likely true of this medication (2018)

A. It is a ligand that is specific for lung and liver blood-vessel receptors. but which is metabolized rapidly in the liver
B. It is a ligand that is specific for blood-vessel receptors in the lung but not in the li
C. It is a receptor that is upregulated when oxygen tension in the lungs is low
D. It is a receptor that is only expressed on blood vessels in the lung

Ans :B

The drug is a ligand not a receptor, although option D can be viable if it started with "It's receptor is only expressed...."

(2018)

If 10 mg of naproxen produces the same analgesic response as 100 mg of ibuprofen ,which of the following statements is correct

A. Naproxen is more efficacious than is ibuprofen
B. Naproxen is more potent than ibuprofen
C. Naproxen is full agonist , and ibuprofen is a partial agonist .
D. Naproxen is a competitive antagonist .
E. Naproxen is a better drug to take for pain relief than is ibuprofen

Ans :B

(2018)

If a 10 mg morphine produces a greater analgesic response than can achieved by ibuprofen at any dose , which of the following statements is correct ?

A. Morphine is less efficacious than is ibuprofen
B. Morphine is less potent than is ibuprofen
C. Morphine is a full agonist , and ibuprofen is a partial agonist .
D. Ibuprofen is ab competitive antagonist .
E. Morphine is a better drug to take for pain relief than is ibuprofen

Ans :E

(2018)

Which of the following regarding E max (maximum efficacy) is correct ?

A. E max assumes that as long as you increase the concentration of the drug , there will be a higher effect of the drug .
B. E max is used to compare the potency of different drugs .
C. E max assumes that all receptors are occupied by the drug and no increase in response is observed if a higher concentration of drug is obtained .
D. All of the previous points are incorrect

Ans :C

(2018)

Candesartan and irbesartan are angiotensin receptor blockers that are used to treat hypertension . The therapeutic dose range for candesartan is 4 to 32 mg , as compared to 75 to 300 mg for irbesartan , knowing that both drugs will result into same effect and response when given in a Therapeutic dose,which of the following regarding this statement is-correct ?

A. Candesartan is more potent than is irbesartan .
B. Candesartan and irbesartan have different efficacy .
C. Candesartan is a non competitive antagonist for irbesartan .
D. Irbesartan is a competitive antagonist for candesartan

Ans :A

(2018)

‘Drug efficacy' refers to

A. The range of diseases in which the drug is beneficial.
B. The maximal intensity of response that can be produced by the drug.
C. The therapeutic dose range of the drug.
D. The therapeutic index of the drug

Ans :B

(2018)

If an agonist can produce maximal effects and has high efficacy it's called

A. Partial agonist
B. Antagonist
C. Agonist-antagonist
D. Full agonist

Ans :D

(2018)

If an agonist can produce submaximal effects and has moderate efficacy it's called:

A. Partial agonist
B. Antagonist
C. Agonist-antagonist
D. Full agonist

Ans :A

(2018)

Agonist is a substance that

A. Interacts with the receptor without producing any effect
B. Interacts with the receptor and initiates changes in cell function, producing various effects
C. Increases concentration of another substance to produce effect
D. Interacts with plasma proteins and doesn't produce any effects

Ans :B

(2018)

Antagonist is a substance that

A. Interacts with plasma proteins and doesn't produce any effect
B. Binds to the receptors without directly altering their functions
C. Binds to the receptors and initiates changes in cell function, producing maximal effect
D. Binds to the receptors and initiates changes in cell function, producing submaximal effect

An antagonist does not produce its effect by activating the receptor to create an effect opposite to that of the agonist. Instead, it works by blocking the receptor and preventing the agonist from producing its action.

Ans :B

For any feedback, scan the code or click on

Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			

Additional Resources:

رسالة من الفريق العلمي:

اللهم نستودعك أهالي غزّة وفلسطين
فانصرهم واحفظهم بعينك التي لا
تنام، واربط على قلوبهم وأمدهم
بجُندك وأنزل عليهم سكينتك وسخر
لهم الأرض ومن عليها.

Duaa_blessings_