

Past Papers pt.4

Pharmacodynamics pt2

﴿ وَإِن تَتَوَلَّوْا يَسْتَبَدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَلَكُمْ ﴾

اللهم استعملنا ولا تستبدلنا

Done by:

- Sara Masadeh
- Shahed Al-hawawsheh
- Mas Nafoukh



اللهم لا سهل إلا ما جعلته سهلا، وأنت
تجعل الحزن والصعب إذا شئت سهلا



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

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

Ans : D

Which of the following statements is CORRECT?

- A. In competitive antagonism a higher concentration of agonist is necessary to achieve the therapeutic effect of the agonist**
- B. With competitive antagonism, the dose effect curve is shifted to the left**
- C. Competitive antagonism is produced by antagonists that have the ability to activate receptors**
- D. Emax does not depend on the number of drug-receptor complexes formed**

Ans : A

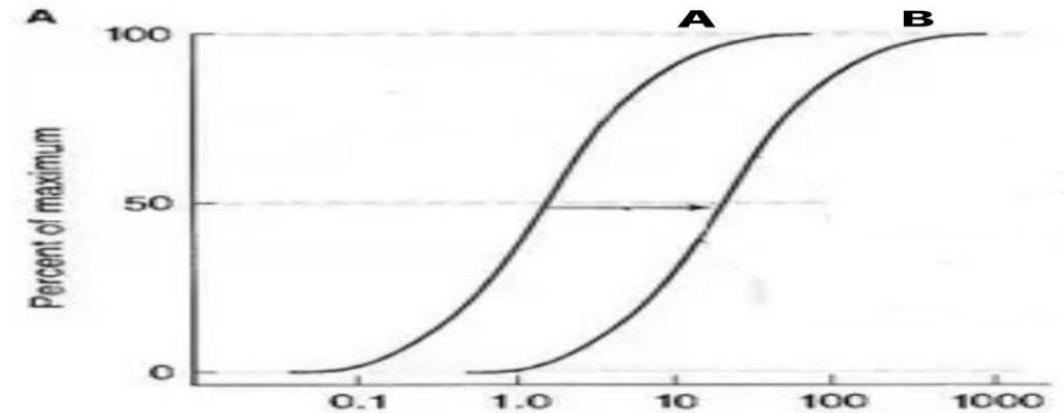
One of the following is not true about pharmacodynamics:

- A. It's studies the biochemical and physiological effect of the drug
- B. its studies the absorption and the distribution of the drug
- C. It's studies the adverse effect of the drug
- D. It's studies the mechanism of action of the drug

Ans : B

In this graph, Curve A represents The effect of an agonist alone. In curve B, it shows the effect of addition of an antagonist, choose the correct statement:

- A. The added antagonist is competitive
- B. The added antagonist is non-competitive



Ans : A

Drug A when used alone produces no effect, and drug B when used alone produces 40% effect, when used together they produce 60% effect. This is an example of:

- A. additive drug effect
- B. potentiation drug effect
- C. synergic drug effect
- D. cancelation

Ans : B
Drug interaction *

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?

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

Ans : C
Drug interaction *

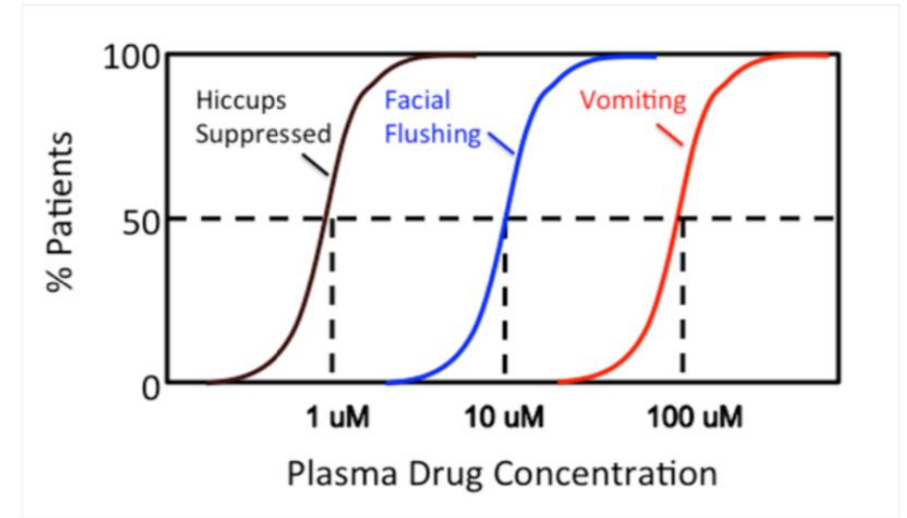
A 66-year-old man is admitted to the hospital with confusion, nausea, and blurred vision. He is currently on digoxin for the treatment of heart failure. On physical exam, his heart rate is 120 bpm. Further evaluation reveals a digoxin level of 5.3 ng/mL (normal range: 0.5–2 ng/mL). The doctor believes his symptoms are due to digoxin toxicity. Which parameter is used to indicate the ability of digoxin to produce the desired effect relative to a toxic effect?

- (A) Bioavailability
- (B) Efficacy
- (C) Intrinsic activity
- (D) Potency
- (E) Therapeutic index.

Ans : E

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?

- (A) 0.1
- (B) 100
- (C) 10
- (D) Can't determine



Ans : C

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) We can't determine

Ans : B

What is correct concerning TI:

(A) A safer drug has a higher therapeutic index

(B) TI might be equal to 1

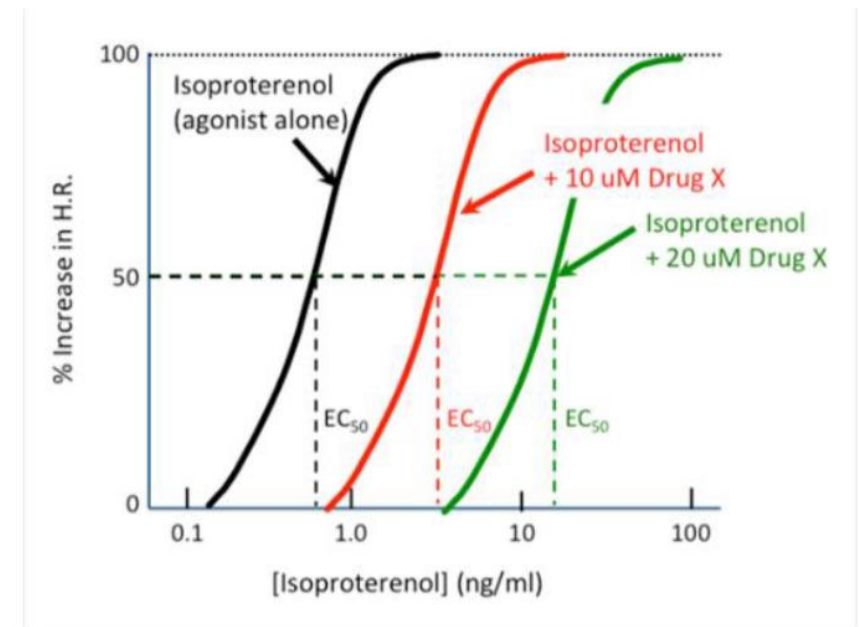
(C) The more the unwanted adverse effect, the ratio decreases

(D) You are in danger if you take 1.8 ng/ml of Digoxin which has the margin of safety(0.8-2)

Ans : A

This graph illustrates the dose-response relationship for the effect of the beta agonist isoproterenol on an isolated perfused heart, both alone and in the presence of different fixed concentrations of Drug X. Based upon the data shown, Drug X is most likely a(n):

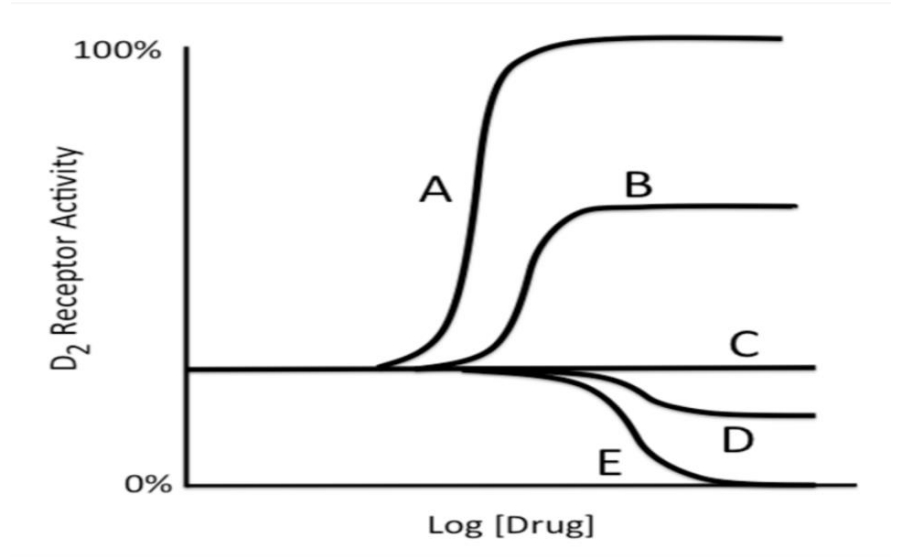
- (A) beta agonist
- (B) competitive antagonist
- (C) irreversible antagonist
- (D) noncompetitive antagonist



Ans : A

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?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E



Ans : B

As a clinical consultant for the Breathright drug research firm, you are given the task of using an in vitro assay to screen ten thousand drug analogs to find the most potent beta-2 receptor agonist. When analysing your data, the biomarker that you should screen for is:

- (A) Emax
- (B) EC50
- (C) Half life
- (D) Toxicity

Ans : 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?

- (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 liver
- (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 lungs

Ans : B

Which of the following is NOT true regarding ligand-gated ion channels?

- (A) React quickly to a stimulus or ligand**
- (B) Can have intracellular binding sites**
- (C) Can exhibit allosteric binding**
- (D) Open or close in response to deformations in the cell membrane**

Ans : D

Isoproterenol produces maximal contraction of cardiac muscle in a manner similar to epinephrine . Which of the following best describe isoproterenol ?

- (A) Full agonist
- (B) Partial agonist
- (C) Irreversible antagonist
- (D) Inverse agonist

Ans : A

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

If a 10 mg morphine produces a greater analgesic response than can be 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 a competitive antagonist.
- (E) Morphine is a better drug to take for pain relief than is ibuprofen.

Ans : E

In the presence of naloxone , a higher concentration of morphine is required to elicit full pain relief . Naloxone by it self has no effect . Which of the following is correct regarding these medications ?

- (A) Naloxone is a competitive antagonist .
- (B) Morphine is a full agonist , and naloxone is a partial agonist .
- (C) Morphine is less efficacious than is naloxone .
- (D) Morphine is less potent than is naloxone .
- (E) Naloxone is a noncompetitive antagonist .

Ans : A

In the presence of pentazocine , a higher concentration of morphine is required to elicit pain relief . Pentazocine by itself has a smaller analgesic effect than does morphine , even at the highest dose , Which of the following is correct regarding these medications?

- (A) Pentazocine is a competitive antagonist .
- (B) Morphine is a full agonist , and pentazocine is a partial agonist .
- (C) Morphine is less efficacious than is pentazocine .
- (D) Morphine is less potent than is pentazocine .
- (E) Pentazocine is a noncompetitive antagonist .

Ans : B

Which of the following regarding E max 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

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 . 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

Generally, the effects of drugs that bind to which of the following receptor can persist for hours or days after the agonist concentration has been reduced to zero?

- a. Ligand-gated ion channels receptors
- b. . Enzyme-linked receptors
- c. Intercellular receptors
- d. . G protein-coupled receptors
- e. All of the above

Ans : C

Generally, the effects of drugs that bind to which of the following receptor can persist for hours or days after the agonist concentration has been reduced to zero?

- a. Ligand-gated ion channels receptors
- b. . Enzyme-linked receptors
- c. Intercellular receptors
- d. . G protein-coupled receptors
- e. All of the above

Ans : C

If the effect of combination of two drugs is equal to the sum of their individual effects, the two drugs are exhibiting. :

- a. Antagonism
- b. Potentiation
- c. Synergism
- d. Additive

Ans : D

Which of the following terms best describes a drug that blocks the action of epinephrine at its receptors by occupying those receptors without activating them ?

- a. Partial agonist
- b. Physiological antagonist
- c. chemical antagonist
- d. Pharmacological antagonist
- e. Noncompetitive antagonist

Ans : D

The therapeutic index of a drug is a measure of its

- a. Dose variability
- b. Additive
- c. Safety.
- d. Potency
- e. Efficacy

Ans : c

Amer was poisoned with a drug that antagonize receptor A irreversibly, which of the following is an appropriate pharmacological intervention?

- a. To give drug that increase the metabolism of Drug A
- b. To give receptor A non-competitive antagonist
- c. To give receptor A non-competitive agonist
- d. To give another drug that is an agonist to a different receptor, such receptor has the same physiological function as receptor A
- e. To give another drug that is an agonist to a different receptor, such receptor has opposite physiological function to receptor A

Ans : d

Irreversible interaction of an antagonist with a receptor is due to:

- a. Ionic bonds**
- b. Hydrogen bonds**
- c. Covalent bonds**
- d. All of the above**

Ans : c

In the previous question, the antagonist represents

- a. Competitive antagonism
- b. Noncompetitive antagonist

Ans : b

If two drugs with the same effect, taken together, produce an effect equal in magnitude to the sum of their effects given individually. It's called:

- a. Antagonism
- b. Synergism
- c. additive drug effect
- d. None of the above

Ans : c

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

Which of the following statements is CORRECT

- a. In competitive antagonism a higher concentration of agonist is necessary to achieve the therapeutic effect of the agonist
- b. With competitive antagonism, the dose effect curve is shifted to the left
- c. Competitive antagonism is produced by antagonists that have the ability to activate receptors
- d. Emax does not depend on the number of drug-receptor complexes formed

Ans :A

Not correct regarding agonists

Ans :partial agonist cannot be an antagonist

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:

بينما تتطلب الذات العجولة أن تحصد رغائبها؛ يفوتها أن التوفيق للدعاء في حد ذاته رفق ورفعة؛ وأن المنال في عينه شطر من هذه المنحة، يقول ابن أبي العز: «الله سبحانه هو الذي يقذف في قلب العبد حركة الدعاء، ويجعلها سبباً للخير الذي يعطيه إياه، فهو الذي وفقه للدعاء ثم أجابه.

انكرونا بدعوة صادقة، ووفقنا الله وإياكم .

سُورَةُ الْاِنْبِرَاءِ

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

وَقُلْ رَبِّ اَدْخِلْنِيْ مُدْخَلَ صِدْقٍ وَاَخْرِجْنِيْ مُخْرَجَ صِدْقٍ
وَاَجْعَلْ لِّيْ مِنْ لَّدُنْكَ سُلْطٰنًا نَّصِيْرًا ﴿٨٠﴾