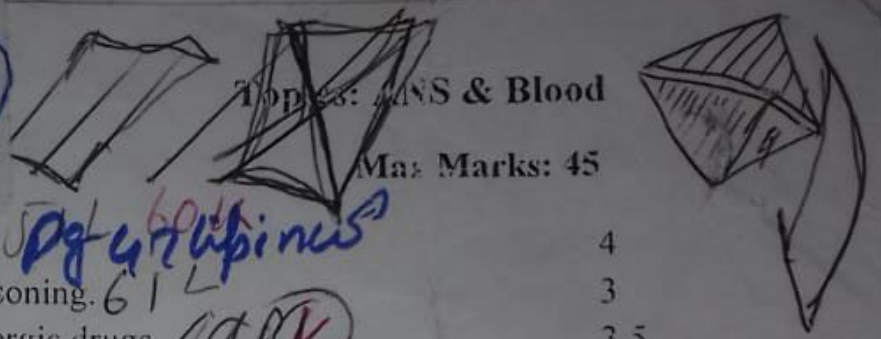
Pharmacology & Therapeutics ANS 115 **Topics: ANS & Blood**

Time Allowed: 1hour **Max Marks: 45**



L-51	a) Enumerate indirectly acting cholinergic drugs. Pg 47 Lupines	4
L-61	b) Write down treatment of organophosphate poisoning. 61 L	3
L-65	2. a) Give therapeutic classification of anti – cholinergic drugs. 69 K	3.5
L-69, 68	b) Enumerate uses & adverse effect of Atropine. 75K	3.5
	3. a) Give difference between heparin and warfarin. 277K — Blood	3.5
	b) Write down mechanism of action of Aspirin as antiplatelet drug. 286 Blood	3.5
L-52	4. Write short notes on: a) Pilocarpine 67K b) Ganglion blockers c) Streptokinase d) Abciximab	(3.5+3.5+3.5+3.5)
	5 a) Explain MOA of Statin 75K 295K	5
	b) Enumerate antihyperlipidemic drugs. 288K	5

Q1 57L

Q2 Neostigmine, 62(K), 51K

Q3(a) Atropine 68

Q4(a) 69K / (b) 67L

Q5 75K, 65L

Q6(a) 67L

Q1 (a) L-51 (b) 89K L-61

Remember -

(5)

1. Give tabulated form, the location, structural features. (1) K
   Mechanism of muscrinic receptor.
2. How you treat patient with organophosphate poisoning 57 (L)
3. Classify anticholinergic drug according to receptor 95K
   Selectivity.
4. Write down therapeutic uses and Contraindication of Atropine 63L
5. Describe Pharmacological effect of atropine on CVS. 17K
- Enumerate adrenoceptor with location.
- How does epinephrine is different from nor-epinephrine in terms of Respiratory system, Cardiovascular System
- Clinical indication of Sympathomemetics.
- Why prazosin causes less reflex tachycardia then Phentolamine
- Classify Adrenergic antagonists on basics of receptor Selectivity.
- Epinephrine reversal phenomenon.
- prazosin in Benign prosthetic hyperplasia.
- Timolol in glaucoma
- Neostigmine in myasthenia gravis.
- propranolol in hypertension.
- What are pharmacologic effect of muscrinic agonist. for the use in eye and GIT.
- Why neostigmine is preferred to Physostigmine in myasthenia gravis.
- What is aging Name organophosphate Compound.
- Enlist ganglion blocker. what are adverse effect
- 3 Contraindication of anti muscrinic drugs
- Eto therapeutic classification of Sympathomemetic drugs.
- effect of adrenaline, Noradrenaline, Isoproterenol on heart.

Q Note on Dopamine, Dobutamine, Amphetamine, Ephedrine
Q Classify α-blockers according to receptor Selectivity
Q How do different drugs effect adrenergic transmission presynaptically explain in diagram.
Q 7 Clinical uses of β-blockers.
Q Why β-blockers are Contraindicated in patient of insulin dependent diabetes
Q Give in tabulated form property of following drugs with reference to Selectivity, partial agonist activity and membrane stabilizing activity 1) Pindolol.
2) Atenolol.
3) Propranolol.
Q Timolol in Glaucoma?
Q Prazosin in Benign Prosthetic hypertrophy.
Q Explain why prazosin causes less reflex tachycardia as Compared to phentolamine.
Q Indirectly acting cholinergic drugs.
Q Difference b/w Heparin and warfarin.
Q Dopamine in hypovolemic Shock and Cardiogenic Shock
Q Uses of propranolol.
Q Bronchodilators classify.
Q Give mechanism and adverse effect of theophylline
Q Drugs used in myasthenia gravis.
Q Salbutamol is asthamic.
Q Epinephrine reversal (Dales phenomenon)
Q Interaction of propranolol.
Q adverse effects of α-blockers, Atropine, β-blockers, Neostigmine
Q Application of α_2 antagonist

chara

Recepter	location	Mechanism	Function
M_1	Nerve endg.	Gq	↑IP3, DAG.
M_2	heart, nerve endg.	Gi	CAMP, activate K channl.
M_3	effator cell, smooth mus'd	Gq.	↑PB, DAG.
N_M	ANS Ganglia.	Na-k. ion channl.	Depolarise evoke A.p.
N_M	Neuromuscular end plate.	Na-k ion channel.	Depolarise evoke A.p.

Recepter	location	Mechanism	Fun
M_1	Nerve endn.	Gq.	↑BB, DAG.
M_2	Heart, endothelium.	Gi	CAMP, activate K channl
M_3	bladder smooth mus.	Gq.	↑P3, DAG.
N_N	Autonomic ganglia.	Na-k ion channl.	Depolarise evoke AP.
N_M	Neuromuscular end plate	Na-k ion chan	" "

Forensic Medicine 20-3-19

Artefacts

It is not a fact but misinterpreted as fact.

Agonal period

During process of death.

⇒ Grieger Counter should be available for diagnosis of radioactive material

Zubaida Hospital
Islam Pura,
Multan Road, Phool Nagar

PHONE
CLINIC: 049-4510562
Mob: 0333-4301322

ڈاکٹر محمد جہانگیر
ایم بی بی ایس

Beta Blockers

	Generic Name	Com. Name	Form	strength
①	Bisoprolol	→ Actim	Teb.	5-10 mg.
		→ Bariol.	Tee.	5-10 mg
		→ Concor	Teb	2.5+5+10 mg
②	Metoprolol	→ Betalock 20K	Tee	100 mg.
		→ Lopressor	~~Teb~~ Inj	1 mg.
		→ Mepresor	Tab	1 mg.
③	Atenolol	→ Atenolol	Teb	50-100 mg
		→ Blokium	Tab.	50-100 mg
		→ Tenormin	Tee	50-100 mg
④	propranolol	→ Inderal	Teb	10-40 mg
		→ propranolol	Teb	10-40 mg
⑤	Carvedalol	→ Carvega	Teb	6.25-12.5 mg
		→ Carvedol	Tee.	" "
⑥	pindol.	→ Visicol dex.	Teb.	5-10 mg

DEPARTMENT OF PHARMACOLOGY

MBBS 3rd YEAR

(General Pharmacology)

SEQ's

Time Allowed: 60min **Max Marks: 30**

1. a) Give advantages and disadvantages of intravenous routes of drug administration 4 Pg-5 Lippincotts
   b) Write down significance of ion trapping mechanism 2
   c) Define clearance. How is it calculated. } below 2
2. a) Enumerate Phase I reactions of biotransformation with example of each. Pg-36 Katzung Table 3
   b) Write two differences between First and Zero order kinetics. Pg-7 Katzung 4
3. a) Define following terms.
   1) Bioavailability Pg-8 Lipp 2) First pass metabolism Pg-8 Lippincotts 4
   b) Describe the factors affecting absorption of drugs Pg-7 Lipincotts 5
4. a) Define volume of distribution. Enumerate factors affecting it ~~Pg-6 KC~~ ↳ below 4
   b) Give clinical significance of volume of distribution Page 12 Sqz 4

1c) **Clearance**: It is the measurement of vol. of plasma from which drug is completely removed per unit of time. Clearance = $\frac{\text{Rate of elimination}}{\text{Plasma drug conc.}}$

1b) **Ion Trapping**: - Weak acids are ionized in the basic medium.
- Weak base is ionized in the acidic medium.
i.e. Barbiturates are removed by basic medium

2-4 a) **Volume of distribution**: It is hypothetical vol of fluid into which the drug distributes. $Vd = \frac{\text{Amount of drug in the body}}{\text{Plasma drug conc.}}$

↳ It is fluid volume that is required to contain the entire drug in the body at the same concentration measured in the plasma.

QUESTIONS/ASSIGNMENTS - 1ST ROUND

PHARMACOKINETICS MBBS/3RD YEAR

1. a. What do you understand by parenteral route of drug administration. Write at least four advantages and four disadvantages of this route?
   b. A patient presented with acute aspirin toxicity due to overdose. Using your knowledge of aspirin pharmacokinetics, how can you help this patient get kid of high plasma aspirin through urine?
2. a. What is first pass metabolism of a drug? Write its two consequences with examples?
   b. 500mg dose of a drug was administered, a uniform concentration of 10mg was achieved in the body. What will be the volume of distribution of this drug?
   c. What do you know about loading dose of a drug? How is it calculated?
3. a. Write down clinical significance of plasma protein binding of drugs with at least one example?
   b. A patient was given 200mg dose of a drug IV and 100mg was eliminated during first 2 hour. If the drug follow first order elimination, how much will remain 6 hours after its administration.
4. a. What is biotransformation. Write names of two phase II reactions with examples.
   b. What are the possible results of drug biotransformation? Write with examples.
   c. What is maintenance dose of a drug? How is it calculated?
5. a. Explain enzymes induction of cytochrome P_{450} with two examples which are clinically relev
   b. Define biotransformation. What are different phase I metabolic reaction, where do they occur?
6. a. What information do you get from plasma half life?
   b. What are different types of drug doses? Give examples.
7. a. Write importance of cytochrome P_{450} inhibition with two clinical examples.
   b. Classify & categorize drug use in pregnancy.
8. a. Write down a comparison between first & zero order kinetics of elimination with graphs & examples? Kaplan
   b. What is plasma half life? How is it calculated?
9. a. Write down different factors which effect the absorption of a drug?
   b. What do you know about bioavailability, bioequivalence & therapeutics equivalence?
10. a. What do you know about drug elimination? factors
    b. What factors effect the distribution of drugs in the body? What is Vd.
11. a. What is plasma half life? What do you know about steady state concentration of a drug?
    b. What are different methods of prolonging drug action?
12. a. What are different routes of drug administration? What are advantages & disadvantages enteral route?
    b. What are different barriers to drug absorption limiting the drug access to certain areas?
    c. What are some special drug delivery system?

phosphatidyl inositol system = epinephrine
③ Arachidonic acid system = histamine

QUESTIONS/ASSIGNMENTS – 2ND ROUND

PHARMACODYNAMICS MBBS 3RD YEAR

K14

1. a) Define 'receptors'. What is meant by 'signaling mechanism'? notes
   b) Write names of different receptor families with one example each? notes (2) (3)

2. a) Write names of three 2nd messengers with an example of drug acting through it. (2)
   b) What are differences between graded and quantal dose response curves? (3)

3. a) What do you know about affinity, efficacy and potency? wadood 19
   b) What is the difference between therapeutic index and therapeutic window? K17 25 wadood (3)

4. a) What are different types of drug antagonism? Give examples. K17 27 (2)
   b) What is a partial agonist? Give example? wadood. (3)
   (2)

5. a) What is drug tolerance? And what is meant by cross tolerance? Give examples. (3) 26 wadood
   b) What is tachyphylaxis? How does it differ from tolerance? Give example. 26 (2)

6. What are different types of drugs interactions? Give examples. wadood (5)

7. a) Write different type of G – Proteins & their associated receptors with examples? (3) notes
   b) What are the advantages of signaling through G – protein coupled receptors? (2) notes

8. a) Why do some drugs cause hemolysis in patients with G6PD deficiency. Explain with examples? notes (3)
   b) Give four examples of the role of genetics in human response to drugs? notes (2)

9. a) What information about a drug is retrieved from its graded dose response curve? (2)
   b) Explain the concept of spare receptors with examples. 2. UHS (9)

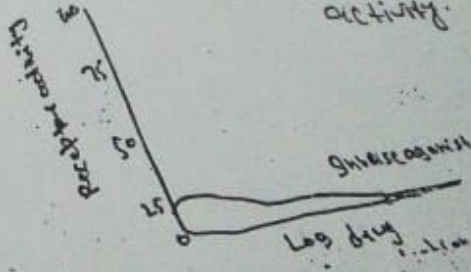
10. a) What do you understand by decreased response of a drug after prolonged exposure? What are possible mechanisms involved? Tolerance, Tachyphylaxis 26 (3)
    b) How partial agonist act as antagonists? Explain with example. wadood 19 pg (2)

11. a) Explain receptor up-regulation with examples? wadood 19 (2)
    (b) What are different types of adverse drug reactions? Give examples. wadood (3)

12. What is meant by 'inverse agonist'? Explain graphically with the help of a drug-receptor model. K14 (5)

A drug that bind to the non-active state of receptor molecule and decrease the constitutive activity.

ii) cAMP e.g Glucagon, epinephrine
iii) cGMP e.g ANF
iv) PIP2 e.g vasopressin epinephrine



phosphatidyl inositol system = epinephrine
③ Arachidonic acid system = histamine

QUESTIONS/ASSIGNMENTS – 2ND ROUND

PHARMACODYNAMICS MBBS 3RD YEAR

K14

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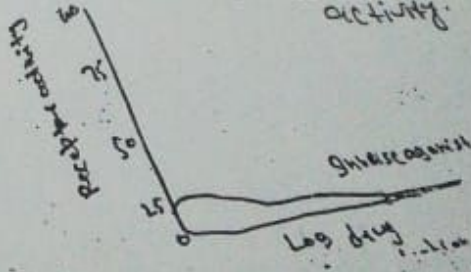
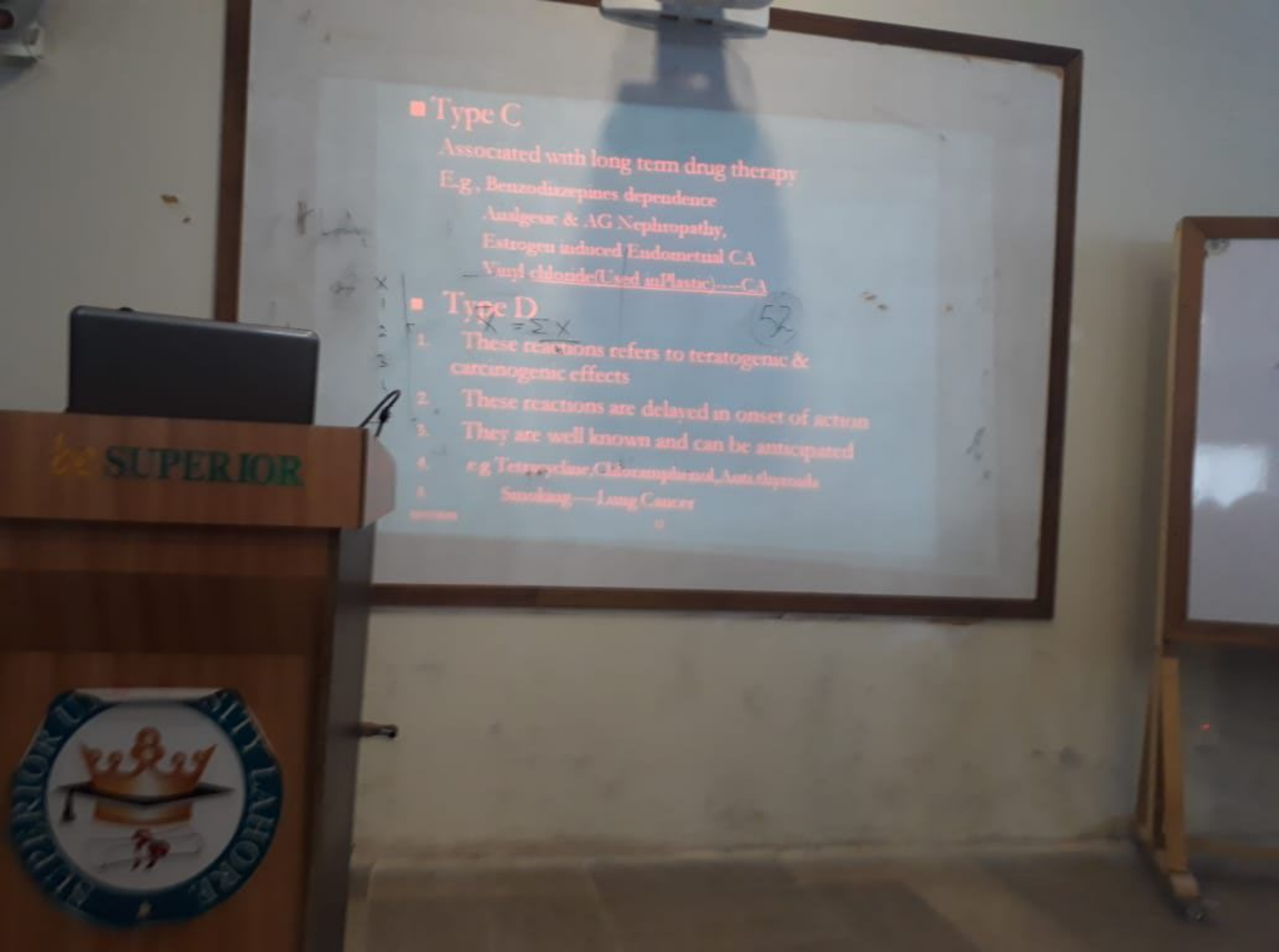
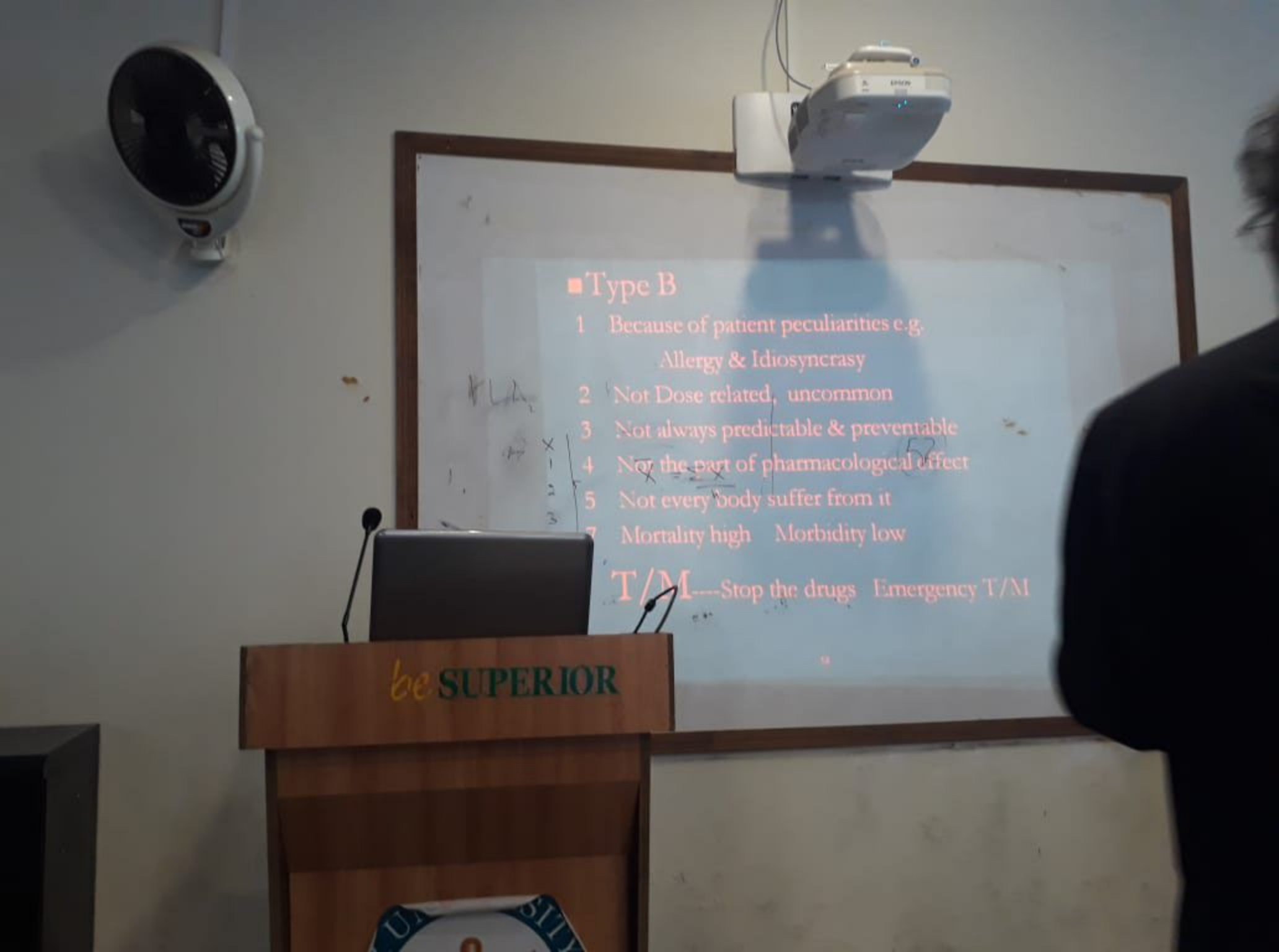
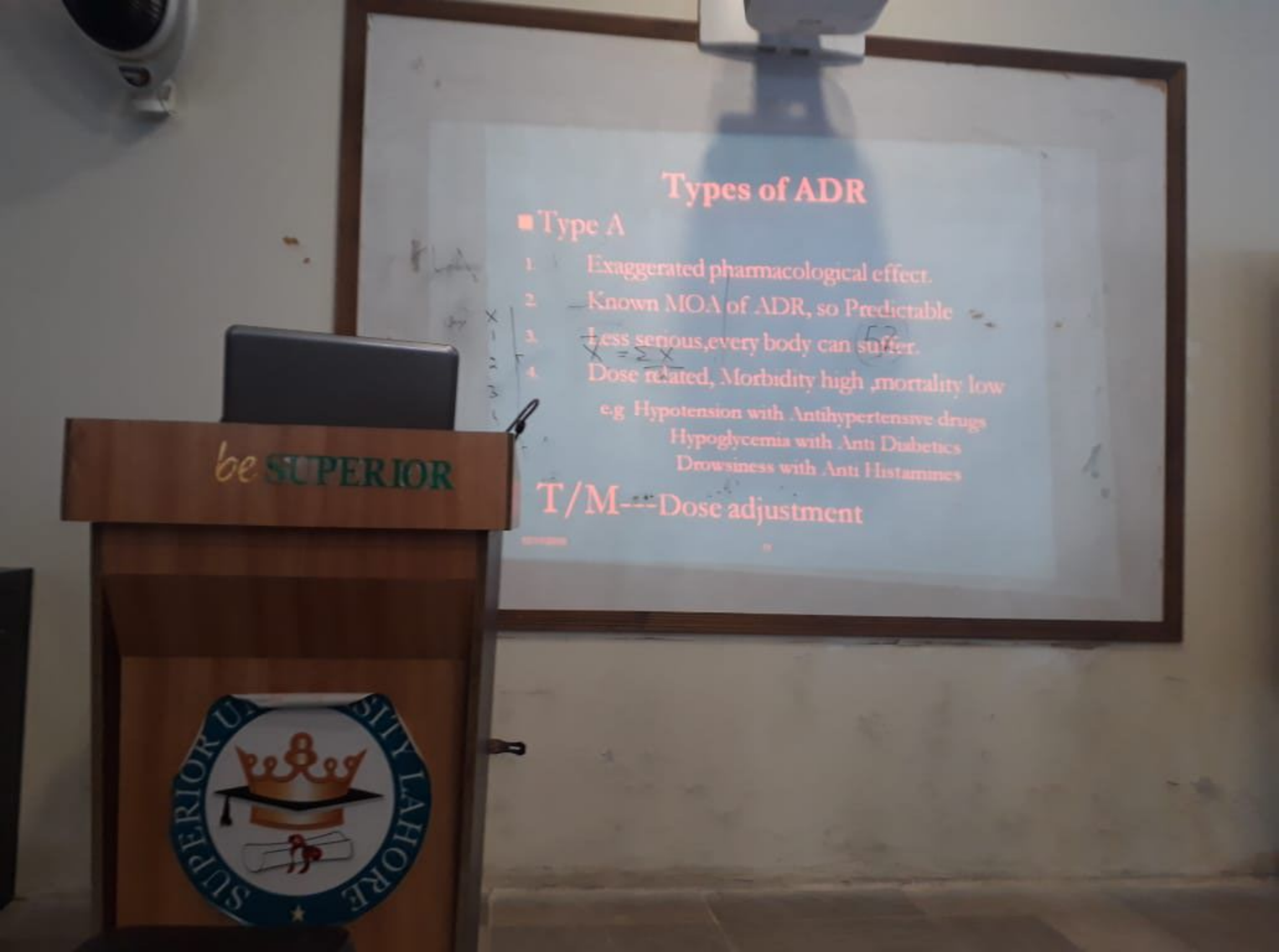
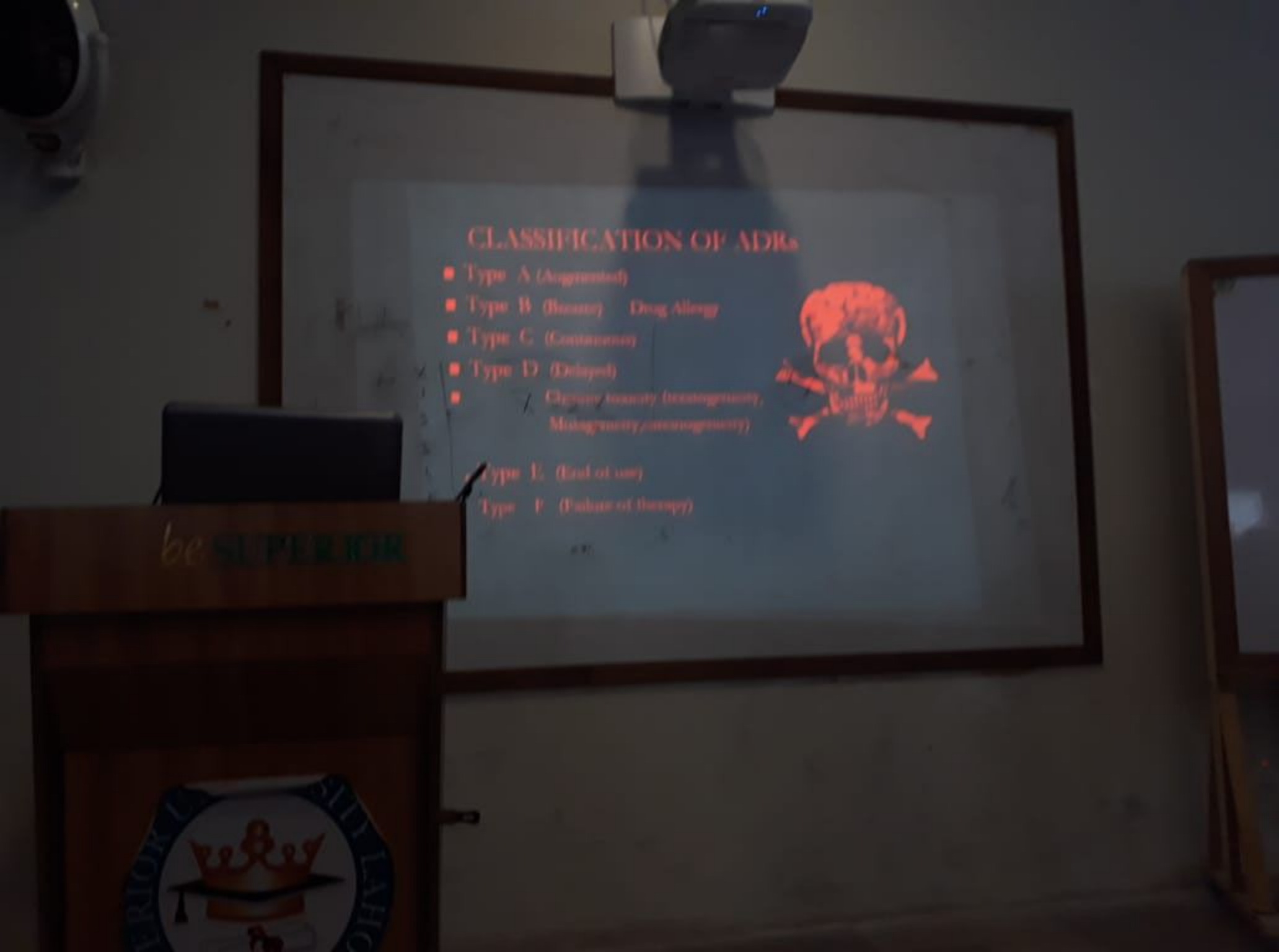



Type C
Associated with long term drug therapy
E.g., Benzodiazepines dependence
Analgesic & AG Nephropathy,
Estrogen induced Endometrial CA
Vinyl chloride(Used in Plastic)----CA
Type D
1. These reactions refers to teratogenic & carcinogenic effects
2. These reactions are delayed in onset of action
3. They are well known and can be anticipated
4. e.g Tetracycline,Chloramphenicol,Anti-thyroids
5. Smoking---Lung Cancer
SUPERIOR


Type B
1 Because of patient peculiarities e.g.
Allergy & Idiosyncrasy
2 Not Dose related, uncommon
3 Not always predictable & preventable
4 Not the part of pharmacological effect
5 Not every body suffer from it
7 Mortality high Morbidity low
T/M----Stop the drugs Emergency T/M
be SUPERIOR


Types of ADR
Type A
1. Exaggerated pharmacological effect.
2. Known MOA of ADR, so Predictable
3. Less serious,every body can suffer.
4. Dose related, Morbidity high ,mortality low
e.g Hypotension with Antihypertensive drugs
Hypoglycemia with Anti Diabetics
Drowsiness with Anti Histamines
T/M---Dose adjustment
be SUPERIOR
SUPERIOR UNIVERSITY LAHORE


CLASSIFICATION OF ADRs
Type A (Augmented)
Type B (Bizarre) Drug Allergy
Type C (Continuous)
Type D (Delayed)
Type E (End of use)
Type F (Failure of therapy)
be SUPERIOR

13-14 (1)

General Pharmacology Test

Marks: 30 Time allowed: 45 minutes

1. a) Enumerate three advantages and three disadvantages of parenteral route of drug administration. 3

   b) Write 2 differences between first and zero order kinetics. 3

2. a) Write two consequences of first pass metabolism. 2

   b) Name two 2nd messengers of G-protein coupled receptors. Describe signaling mechanism of any G-protein coupled receptor: 2+2

3. Write with example the clinical significance of:

   a) Plasma Potein Binding of drugs 3

   b) Microsomal enzyme induction 3

4. a) Describe different types of drug antagonism with examples. 3

   b) A patient admitted in hospital for cough, shortness of breath and fever is prescribed antibiotic tobramycin. The clearance and Vd of tobramycin are 0.08L/min and 40 L respectively. What maintenance dose (MD) should be given intravenously to obtain a steady state plasma concentration (CPss) of 4 mg/L? 3

5. a) Define tolerance. What are different mechanisms of development of tolerance? 4

   b) What is therapeutic index? 2

Pharma

2015–

1

GENERAL PHARMACOLOGY 2015

Pharmaco (Kinetics + Dynamics) SEQs

Time Allowed: 50 minutes Maximum Marks: 30

Attempt all questions

1. a) Write three possible consequences of first pass metabolism. 3
   b) Write two differences between first and zero order kinetics with examples. 2

2. a) Name two 2nd messengers of G – protein coupled receptors. Described signaling mechanism of any G – protein coupled receptor. 3
   b) What are the two most important factors which determine half life of a drug? 2

3. a) Write two differences between graded dose response curve and quantal dose response curve. 2
   b)) Define efficacy and potency. Which of these two attributes is more important about a drug? 3

4. Write with example the clinical significance of:
   a) Plasma Protein Binding of drugs 2
   b) Microsomal enzymes induction 1.5
   c) Microsomal enzyme inhibition 1.5

5. a) Define volume of distribution. How it is calculated? 3
   b) What is the difference between Elimination and Excretion. 2

6. Define
   a) Partial agonist 1.5
   b) Inverse agonist 1.5
   c) Competitive antagonist 2

8888888888888888888888888888888888

14-15 (1) (16)

GENERAL PHARMACOLOGY

SEQs

Time Allowed: 50 minutes

Maximum Marks: 30

Attempt all questions.

1. a) What is dose response curve? Define efficacy and potency. Notes (back) 1+2
   b) Write two differences between first and zero order kinetics with examples. Notes 3

2. a) Write two consequences of first pass metabolism. Notes 2
   b) Name two 2^{nd} messengers of G – protein coupled receptors. Described signaling mechanism of any G – protein coupled receptor. Notes +Pg 27(L) 2+2

3. a) Write with example the clinical significance of: Notes
   i) Plasma Protein Binding of drugs 1.5
   ii) Microsomal enzymes induction 1.5
   b) Why do some patients with G6PD deficiency have bleeding tendency when given certain drugs? (back 3

4. a) Describe different types of drug interaction with examples. notes 3
   b) A patient admitted in hospital for cough, shortness of breath and fever is prescribed antibiotic tobramycin. The clearance and Vd of tobramycin are 0.08L/min and 40L respectively. What maintenance dose (MD) should be given intravenously to obtain a steady state plasma concentration (CPSS) of 4mg/L? Not Paper 3

5. a) Define tolerance. What are different mechanisms of development of tolerance? 4 Notes
   b) What is therapeutic window? Illustrate by graphical representation. Back 2

Mechanism of tolerance
- Change in receptor sensitivity
- Enzyme Induction
- Intestinal absorption

Cl - 0.08L/min
Vd = 40L
Plasm. con

0.08 × 4 = 0.32

0.32/100

32/100 × 40

32/4000

DEPARTMENT OF PHARMACOLOGY

SEQ's

Max Marks: 30 **Time allowed: 60mins**

Q1 a) Classify Oral hypoglycemic drugs. What is the mechanism of action of Sulfonylureas.

b) Enumerate four clinical uses of Insulin.

Q2.a) Explain the Mechanism of Action and clinical uses of following drugs:

i)Clomiphene citrate ii)Tamoxifen

b)Write down two contraindications of combined oral contraceptives.

Q3.Enumerate the following:

i)Adrenal uses of Glucocorticoids ii)Insulin preparations according to duration of action

Q4.a)How does Glucocorticoids exert their anti-inflammatory and immunosuppressive effects?

b)Enumerate drugs active against trematodes infection.

Q5.Describe the MOA and toxicity of methotrexate.

b) How will you reverse the toxicity of methotrexate?

c) Name alkylating agents and what are their Adverse Effects?

DEPARTMENT OF PHARMACOLOGY

Max Marks: 65 **SHORT ESSAY QUESTIONS** **Time Allowed: 1hour 15 mins**

Q1 a) Classify Oral hypoglycemic drugs. What is the mechanism of action of Sulfonylureas. 2+2

b) Enumerate adverse effects and clinical uses of Insulin. 2+2

Q2.a)Explain the Mechanism of Action and clinical uses of following drugs:

i)Clomiphene citrat ii)Tamoxifen iii)Flutamide 3+3+3

b)Write down two contraindications of combined oral contraceptives. 1

Q3.a)How does Glucocorticoids exert their anti-inflammatory and immunosuppressive effects? 3

b)Describe non Adrenal uses of glucocorticoids. 4

Q4.a)Classify drugs used for Hyperthyroidism. 3

b)Describe the mechanism of action and clinical uses of Carbimazole. 4

Q5.a)Classify drugs used for treatment of congestive cardiac failure. 3

b)Write down the Mechanism of action and clinical uses of Digoxin. 4

c)How will you treat a patient of Digoxin Toxicity. 2

Q6.a)Discuss Mechanism of Action and adverse effects of following drugs. 3+3+3

i)Spironolactone ii)Lidocaine iii)Furosemide

b) Enumerate Class I antiarrhythmic drugs. 2

Q7.a)What are the advantages of combining nitrates with β blockers in angina. 2

b)Name the drugs used for hypertensive emergencies 2

c)Give Mechanism of action and adverse effects of following: 3+3+3

i)Clonidine ii)Fenoldopam iii)Verapamil

2nd Prof. MBBS
Sendup Examinations 2017
PHARMACOLOGY
SEQs

Time Allowed: 2 Hours | Total Marks: 75

Q1.a) Define Drug Dependence. How it differs from Tachyphylaxis 2
b) What is physiological antagonism. Explain with example 3

Q2 a) Enumerate Nicotinic receptors with their locations & functions 3
b)Write down clinical uses and adverse effects of Neostigmine. 2

Q3 a). Classify the drugs used for the treatment of Hypertension. 3
b) Give adverse effects & therapeutic uses of Clonidine 2

Q4.a) Enumerate Calcium Channel Blockers 2
b) Give mechanism of action & adverse effects of Sodium Nitropruside 3

Q5. a) Describe the mechanism of action of
i) Cyclophosphamides ii) Nitrates & nitrites 1.5+1.5
b) Enumerate therapeutic uses of oral contraceptives 2

Q6 a) Describe the Mechanism of action of Aminoglycosides 2
b) Write down the therapeutic uses and adverse effects of Chloroquine. 3

Q7 .a) Enumerate Barbiturates 2
b)Discuss briefly Mechanism of action and clinical uses of Phenobarbital. 3

Q8. a) Classify Antidepressant drugs. 3
b) Give depressant effects of Morphine. 2

Q9 a) Classify drug treatment of Peptic Ulcer 2
b. Give clinical uses & adverse effects of Proton Pump Inhibitors 3

Q10.a) Enumerate Sulphonamides 2
b) Give clinical uses & adverse effects of Chloramphenicol 3

Q11. a) Enumerate clinical uses & adverse effects of Ciprofloxacins 3
b) Give the drug options for the treatment of hypnozite stage of Malaria 2

Q12 a) Enumerate NSAIDS(COX-1 & COX-2 Inhibitors) 3
b) Describe the pharmacological actions of Aspirin 2

Q13. Classify Oral Antidiabatic drugs? Discuss Mechanism of action of Sulfonylureas 2+3

Q14. a) Enumerate drugs used in the treatment of CCF 2
b) Give mechanism of action & uses of Methotrexate. 3

Q15 a) Write down the mechanism of action of :
i. Digoxin. 2.5
ii. Salbutamol 2.5