



STAFF NURSE

NATIONAL RURAL HEALTH MISSION

DEPARTMENT OF MEDICAL, HEALTH & FAMILY
WELFARE RAJASTHAN

VOLUME – 8

PHARMACOLOGY, COMMUNITY HEALTH
NURSING AND NURSING RESEARCH &
EDUCATION



CONTENT

PHARMACOLOGY

1. Central Nerves System	1
2. Autonomic Nerve System	3-4
3. Parasympathetic – Mimetic Cholinergic Drug	6-7
4. Organo phosphatic Poisoning	8-9
5. Anti – Cholinergic Drug	13-17
6. Sympathetic / Adrenergic Drug	18-19
7. Anti – Adrenergic Drug	20-22
8. Anti – Hypertensive Drug ➤ Diuretics ➤ Ace Inhibitor ❖ Congestive Heart Failure ❖ Arrhythmia ➤ Anti – Athymic Drug	23-43
9. NSAIDs	44-51
10. Cough	53
11. Coagulants Drug	53-58
12. Antibiotic	59-64
13. Anti- Tubercular therapy	65-68
14. Drug of Cough	70-73
15. Anti – Coagulant Drug	74-75
16. Neuro - Endocrinology	76-78
17. Endocrinology System	79-85
18. Hormones	85-93

19. Pituitary Glad	94–97
20. Client Unit	98–100
21. Pressure Ulcer	101–104
22. Oxygen Therapy	105–109
23. Legal Aspect	110–113
24. Blood Transfusion	114–188
COMMUNITY	
1. Terminology	119–125
2. Epidemiology	125–128
3. Level of Prevention	129–130
4. Immunity	130–133
5. Communicable Disease	134–186
➤ Small Pox	134
➤ Chicken Pox	138
➤ Measles/Rubeola	142
➤ Mumps	148
➤ Diphtheria	151
➤ Pertussis	153
➤ Tetanus	155
➤ Influenza	158
➤ Bird flu [H5N1]	161
➤ Typhoid	162
➤ Cholera	164
➤ Poliomyelitis	167
	170

➤ Rabies	174
➤ Leprosy	178
➤ Dengue	180
➤ Malaria	
6. Comities	187–193
7. Five Year Plan	193–195
8. Demography	196–197
9. Contraceptive Methods	198–208
10. Mission Indradhanush	208–209
11. Cold Chain	210
12. Occupational Hazards	211–214
❖ Nursing Research	215–224
❖ Nursing Education	225–232

PHARMACOLOGY

① Central Nervous System (CNS)

(A) Brain

(B) Spinal Cord

⇒ Cranial Nerve (12)

Spinal Nerve (31 pair)

O → Olfactory
O → Optic
O → Oculomotor

C → Cervical → 8

T → Thoracic → 12

L → Lumbar → 5

Tamil T → Trochlear

S → Sacral → 5

Teacher T → Trigeminal

Coccygeal → 1

Ask A → Abducens

Sympathetic

For F → Facial

↓

Very V → Vestibulocochlear

Thoraco-Lumbar Outflow

Good G → Glossopharyngeal

↓

Vada V → Vagus

Thoracic + Lumbar

And A → Accessory

Holwa H → Hypoglossal

Para-Sympathetic

↓

Cranial-Sacro-Outflow

Cranial Nerve + Sacral

Vagus nerve → Inhibitor Nerve

↓

(Heart Rate ↓ se)

(2) Autonomic Nervous system

(A) Para sympathetic system
(Acetylcholine)

(B) Sympathetic system
(Adrenaline)

गूत/दरवना/उर लगाना

Stimulate sympathetic system

- * Heart Rate (\downarrow se)
- * B.P. (\downarrow se)
- * pupil constrict (Miosis)

- * Heart Rate (\uparrow se)
- * B.P. (\uparrow se)
- * pupil dilation (Mydriasis)

* Gastric secretion (\uparrow se)

* Gastric secretion (\downarrow se)

* Saliva, sweating, nasal
intestinal, Respiration

Secretion (\uparrow se)

* Micturation (\uparrow se)

* Micturation (\downarrow se)

Due to contraction of
depressor muscles

* Defecation (\uparrow se)

* Defecation (\downarrow se)

due to \uparrow se peristalsis
Movement

(2) Autonomic Nervous system

(A) Para-sympathetic system
(Acetylcholine)



- * Heart Rate (\downarrow se)
- * B.P. (\downarrow se)
- * pupil constrict (Miosis)

* Gastric secretion (\uparrow se)

* Saliva, sweating, nasal
intestinal, Respiration



secretion (\uparrow se)

* Micturation (\uparrow se)



Due to contraction of
detrusor muscles

* Defecation (\uparrow se)



due to \uparrow se peristalsis
Movement

(B) Sympathetic system
(Adrenaline)

ग्लूकोज/ग्लाइसेरॉल/सर्जन

Stimulate sympathetic system



- * Heart Rate (\uparrow se)
- * B.P. (\uparrow se)
- * pupil dilation (Mydriasis)

* Gastric secretion (\downarrow se)

* Micturation (\downarrow se)

* Defecation (\downarrow se)

* Spleen Capsule Contract
↓
Blood Release

* Smooth Muscle Contraction

* Smooth Muscle Relaxation

↓
(Internal organ)



↓
Bronchospasm

* Bronchodilation

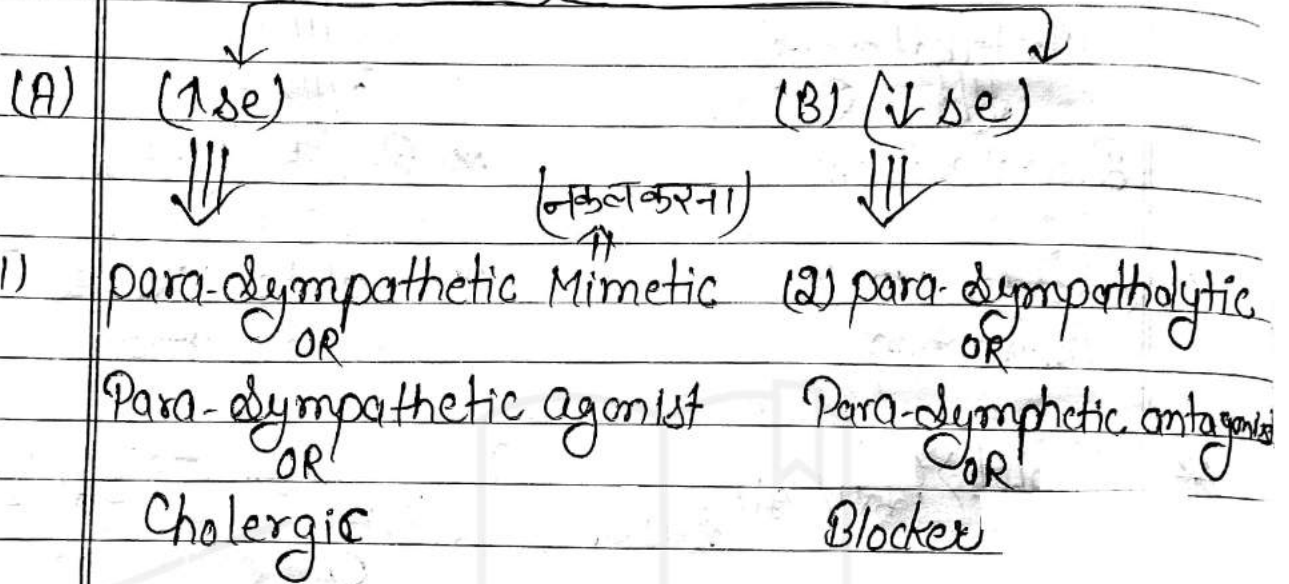
* Skeletal Muscles Contraction

* Skeletal Muscles Relaxation

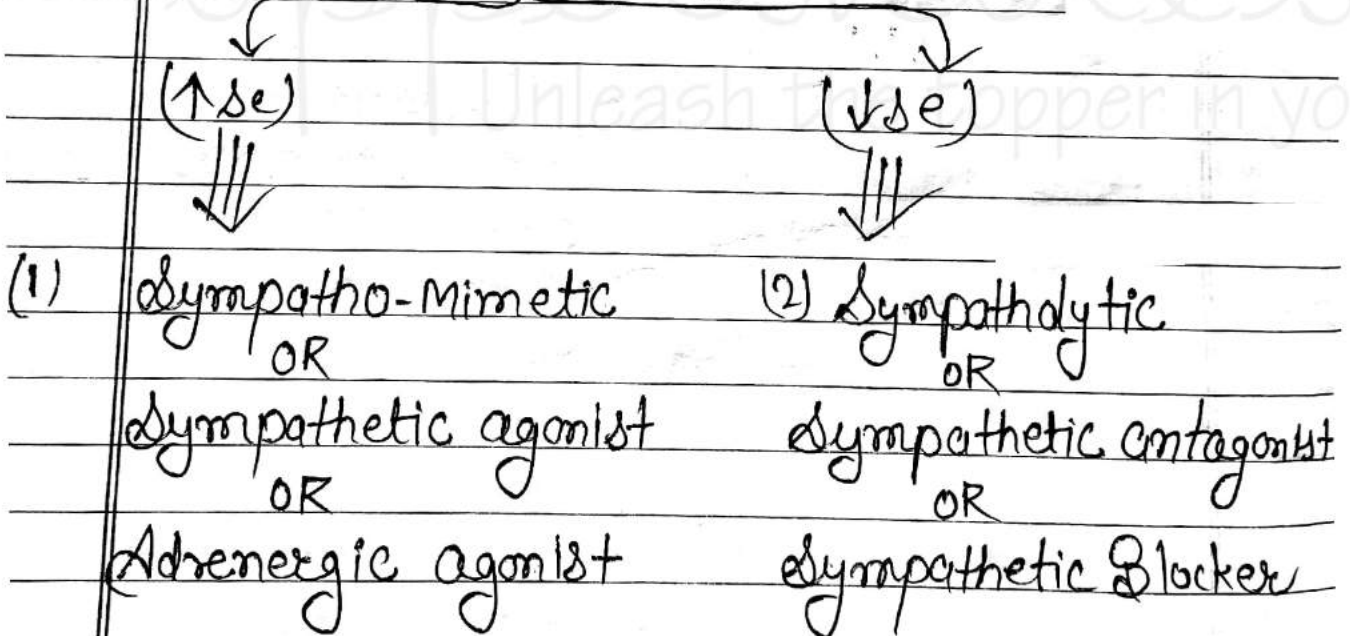
* Agonist → किसी भी System की Activity को बढ़ा देता है।

* Antagonist → System की Activity को कम करता है।

Para-sympathetic Drug



Sympathetic Drug



* Parasympathetic-Mimetic/Cholinergic Drugs

Chemical \rightarrow Acetyl-Choline

Drug \rightarrow Acetyl-Choline

(proto-type) \rightarrow its own system drug

② Methacholine

③ Bethanechol

④ Carbachol \rightarrow Urination कराते है।

Alkaloids (Plant से) \leftarrow ⑤ Muscarine \rightarrow Mushroom से मिलता है। (साँप की धारी) Like

⑥ Pilocarpine

⑦ Arecoline \rightarrow Areca-catechu \rightarrow (सुपारी)

सुपारी खाने के बाद पानी पीने से \rightarrow Pain

(Oral Muscle Contraction)

⑧ Anticholinesterases Drug

Inhibit Cholinesterase enzyme

No Breakdown acetylcholine

Acetyl-Choline (↑se)

para-sympathetic (↑se)

Note \rightarrow

Mainly Cholinesterase enzyme का action \rightarrow acetylcholine का Break-down करना है।

* Classification Anticholinesterase drug (Page No. 15)

(1) Reversible

(2) Irreversible

Enzyme को Bind करके वापिस छोड़ देता है।

Permanent damage करता है।

(A) Carbamates

(B) Acidine

(A) Organo-phosphate

Carbamates

Imp * Physostigmine
* Neostigmine

* Tacrine

(use insecticides)

~~Carbamate~~
* Carbaryl
* propoxur

* Pyridostigmine
* Edrophonium

* Donepezil (use → Alzimers disease)
(Loss of Memory)

* Galantamine

Imp * Parathion
* Malathion

farmer insecticide poisoning & use

* Tabun, sarin, soman (gas)
* Diazinon
* Dyflor

* Organo-phosphate poisoning *

Organo-phosphate → powerfull

ये Enzyme के साथ → powerfull Bind होता है।

⇒ Organophosphate poisoning mainly किसान/ insecticide से होने वाली poisoning होती है।

Clinical features ⇒

- (1) Hypotension
- (2) Initial decand → Bradycardia
Late → Tachycardia
- (3) ↑ se Saliva, gastric, respiratory secretion
- (4) Micturation & defecation
- (5) Bronchospasm → (due to respiratory failure)

Mgt DR Rule ABC ⇒

- A → Airway
- B → Breathing
- C → Circulation

② Stomach wash ⇒

Stomach wash करने के लिए potassium permagnate use में लेते हैं।

③ (↓ se) Reversible of para-sympathetic symptoms

↓ ↓ ↓
give → atropine (every-15 min)
↳ लक्ष्य → pupil dilation

Organophosphate Antidote \rightarrow Oxime/pralidoxime
 \Downarrow (Aspirin)
within 24 Hours

Note \Rightarrow (1) ~~py~~ pralidoxime \rightarrow
It is Lipid Soluble

\Downarrow
Cross Blood Brain ~~Bar~~ Barrier

\Downarrow
goes/Reach in Brain

(2) Neostigmine \rightarrow
water soluble

\Downarrow
Muscle में जाती है | Brain में नहीं

\Rightarrow skeletal muscle contract होने के लिए
Neostigmine के साथ atropine दी जाती
है।

\Rightarrow Atropine \rightarrow parasympathetic drug

Opium में Maximum \rightarrow Miosis होता है

uses of para-sympathetic drug

① Glaucoma →

* Glaucoma occur → due to ↑ Intra-Cranial pressure (ICP)



↑ Aqueous Humor/Fluid



secreted by Ciliary body of eye.

* Trico-Chornial angle → angle made b/w eyelid or cornea.

Drug is give → pilocarpine drug



Miosis (contract pupil)

(2) Myasthenia Gravis (MG)

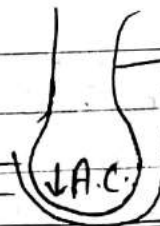
अशक्तता

Auto-immune disease



(Due to Muscle weakness)

Thymus gland को निकाल देते हैं।



Acetylcholine

के बन्धान के लिए receptor बनते हैं।

↳ Muscle → Muscle से recept or antibody बनते हैं।

लेकिन Myasthenia gravis में antibody बनने से muscle receptor खराब हो जाते हैं। और acetyl choline बढ़ जाता है।

Acetyl-choline की बचाने के लिए rapid काम करने के लिए Neostigmine drug दी जाती है।

जिससे muscle contraction ↑ से होता है।

③ Carbo-Bite ⇒

Carbo poison → Curae like poison

use drug → Neostigmine

Muscle Contract करेगा।

ste ⇒ Skeletal Muscle Relaxion drug

① Tubocurine

(Curae)

② Succinyl

④ post-operative paralytic Pleus ⇒ Neostigmine drug use

Relaxation of smooth muscle

No defecation

⑥ Antidote of skeletal muscle Relaxation

⇓
Eg → Neostigmine

⑦ Alzheimer's Disease → (Memory loss)

⇓
Drug use → Donepezil

⇒ pupil dilation eye examination of Retina

⇓
Retinoscopy

* Anti-Cholinergic Drug → (Page no. 16)



also k/as → * Muscarinic Receptor Antagonists

- * Atropine
- * Parasympathetic
- * Ganglion Blocker
- * Neuro-Muscular Blocker

Classification of Anti-Cholinergic drug

① Natural Alkaloids
⇓
(plant s)

* Atropine

⇓
egetal plant

⇓
Atropa-Bella
doona

* Hyosine

⇓
ant → Hyoscinus Niger
(Aid to gr uter)

Hyosine also k/as

⇓
Scopolamine

② Semi Synthetic Derivatives

⇓
Plant cilyap. prepare

⇓
* Homatropine

* Atropine-

* Methonitrate

* Hyosine Butyl-
Bromide

* Ipratropium Bromide

⇓
(Atropine)

⇓
(Asthma)

③ Synthetic Compounds

⇓
Prepare Lab.

(A) ⇓
* Mydriatic

- Cyclopentolate

- Tropicamide

Time (A) ⇓
* Vasico selective

- Oxybutynin

⇓

Use → Urinary

Incontinence

C2 Antispasmodic drug



- * Oxyphenonium
- * Vilethamate
- * Dicyclamine

Imp



Relieve abdomen pain



abdominal muscle Relax

(D) Antiparkinsonian Drug



Dopamine & choline कीनी का Dose होना
parkinsons disease होता



Dopamine ↑ se → choline ↓ se
Choline ↑ se → dopamine ↓ se

- * procyclidine
- * Tri-Hexy-phenidyl (THP)

(E) Anti-secretory Drug



- * Glycopyrolate drug



To prevent aspiration by secretion

⇒ Glycopyrolate inj. given



Before surgery becoz ↓ se
secretion.

Imp² Uses of Anticholinergic drug

Code → ATROPA Bronchospasm

A → As Mydriatic

T → Traveller's diarrhoea (Motion sickness)

Drug use → Hyosine

R → Rapid Onset (Mushroom poisoning)

Rx drug → Atropine

O → Organo-phosphate poisoning

Drug → Atropine

P → Pre-anesthetic Medication

A → Antispasmodic / Antisecretion

Drug → Dicyclomine

Glycopyrrolate

B → Bronchial Asthma