

ANTI-CHOLINERGIC DRUGS

BLOCK RECEPTORS OF ACh.

(ACh)
(M) (N)
N_N N_M

M-BLOCKERS

k/a ANTI-MUSCARINICS

N-BLOCKERS

N_N #

k/a GANGLIONIC BLOCKERS ✓

eg. TRIMETHAPHAN
HEXAMETHONIUM
etc.

N_M #

k/a NON-DEPOLARISING
MUSCLE
RELAXANTS

eg. d-TUBOCURARE
etc.

NATURAL

SEMI-SYNTHETIC

SYNTHETIC

ATROPINE

HYOSCINE
(SCOPOLAMINE)

REST ALL DRUGS

www.FirstRanker.com

USES OF ANTI-MUSCARINIC DRUGS :-

CNS
HEART
EYES
BLADDER
BRONCHUS
GIT

i) CNS :-

ATROPINE : ↓ COGNITION & MEMORY
+
↑ EXCITATION ✓

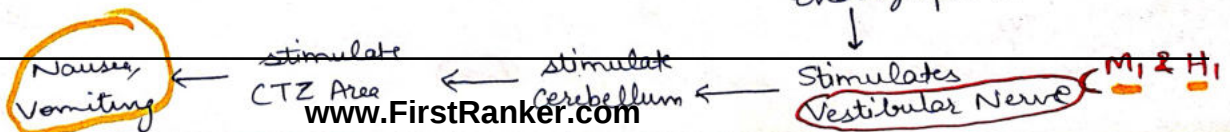
HYOSCINE : ↓ COGNITION & MEMORY ✓
+
SEDATION ✓

a) HYOSCINE - USED AS TRUTH SERUM / NARCO-ANALYSIS ✓

DOC - THIOPENTONE ✓

b)  MOTION-SICKNESS - DOC - HYOSCINE ✓ → M₁ #

Journey → Head Movement → semicircular canal move
↓
Endolymph move.
↓



T_t - Motion Sickness

ANTI-MUSCARINIC (M₁)

• HYOSCINE (DOC)

Route: ORAL

ANTI-HISTAMINIC (H₁)
(1st generation)

- DIPHENHYDRAMINE
- PROMETHAZINE ✓
- CYCLIZINE ✓

Route: ORAL

* THESE DRUGS SHOULD BE GIVEN 30 MINUTES BEFORE JOURNEY. ✓

NO EFFECT AFTER VOMITING HAS STARTED. ✓

c) PARKINSON'S DISEASE -

ACh ⇌ DOPAMINE

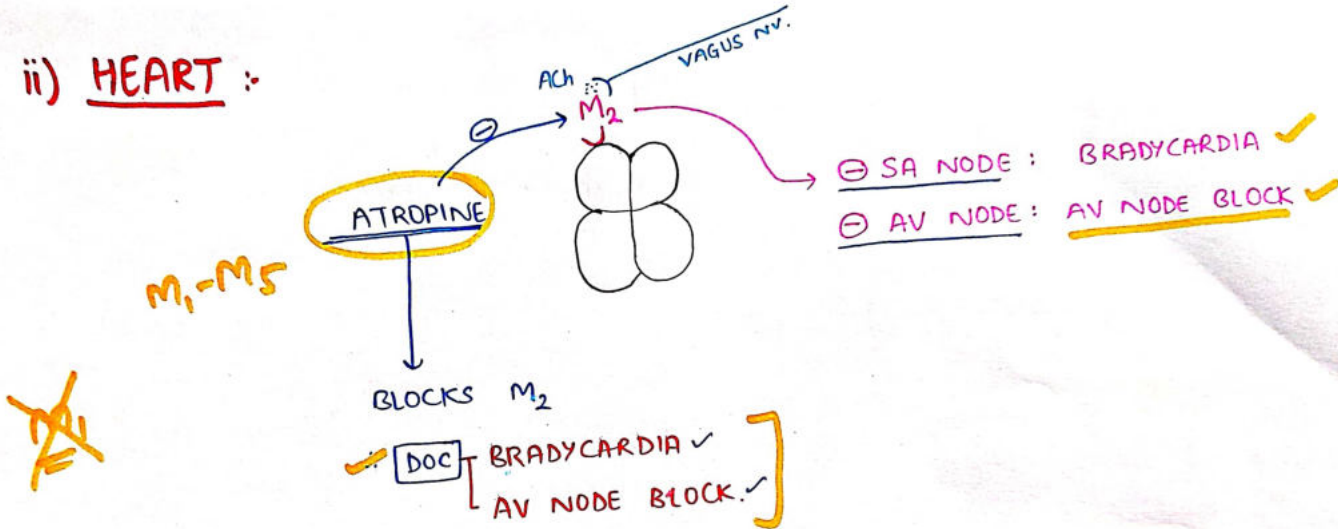
ACh ⇌ DOPAMINE

DRUGS ACTING ON BASAL GANGLIA :

- ✓ BENZHEXOL (TRIHENPHENIDYL)
- ✓ BENZTROPINE
- ✓ BIPERIDIN

(DOC): DRUG INDUCED PARKINSON'S DISEASE.

ii) HEART :



* ATROPINE ITSELF CAUSES TRANSIENT BRADYCARDIA ($\because$ BLOCKING OF M_1 ON VAGUS NV.)
FOLLOWED BY SUSTAINED TACHYCARDIA
($\because$ BLOCKING OF M_2 RECEPTOR ON HEART)

* ATROPINE HAS NO EFFECT IN DENERVATED / TRANSPLANTED HEART. $\because$ THERE IS NO NERVE SUPPLY.

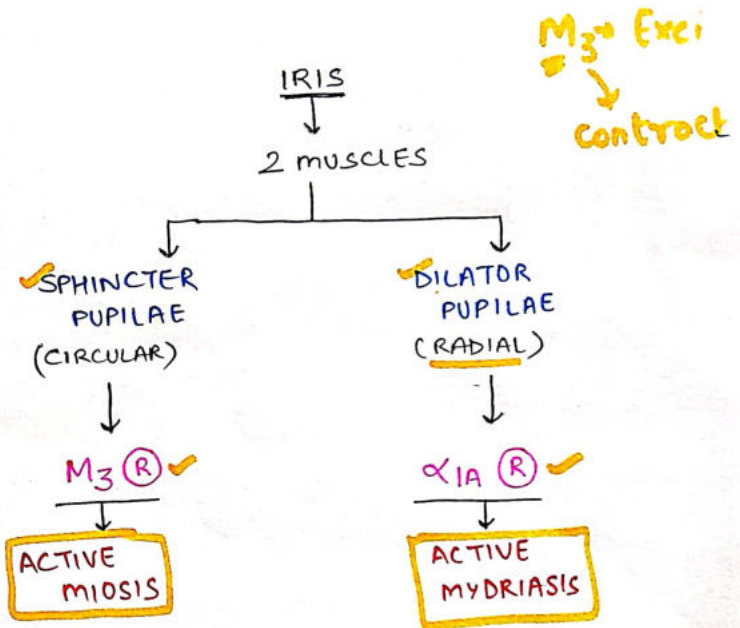
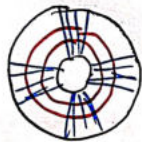
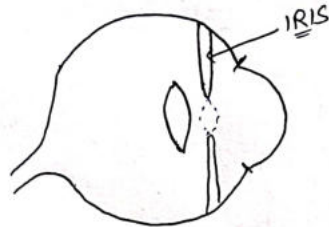
$\therefore$ BRADYCARDIA IN TRANSPLANTED HEART $\Rightarrow$

DOC ISOPRENALINE
[$\oplus \beta_1$ RECEPTOR]

$\beta_1 \rightarrow$ HEART $\rightarrow \oplus \uparrow$

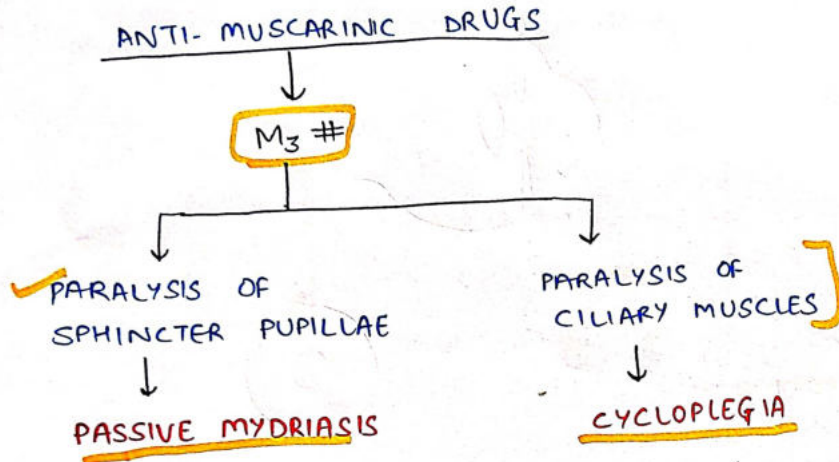
iii) EYES :-

MIOSIS



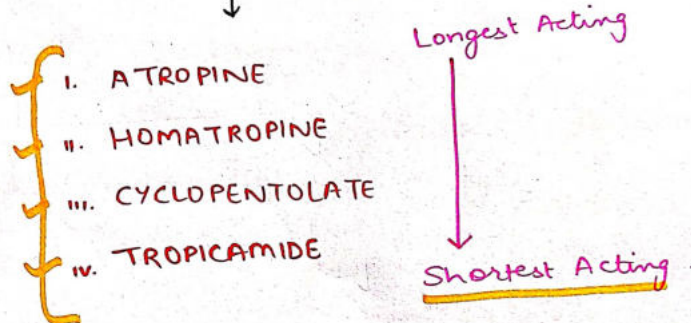
CILIARY MUSCLE : HAS M_3 (R).

↓
CONTRACT
CILIARY MUSCLES
↓
ACCOMODATION



- ∴ USES :
- ① FUNDOSCOPY (mydriatic use)
 - ② REFRACTIVE ERROR TESTING
 - ③ SPASM OF CILIARY MUSCLES
(v/a IRIDO-CYCLITIS)
- } (Cyclopegic use)

DRUGS : Topical Eye Drops



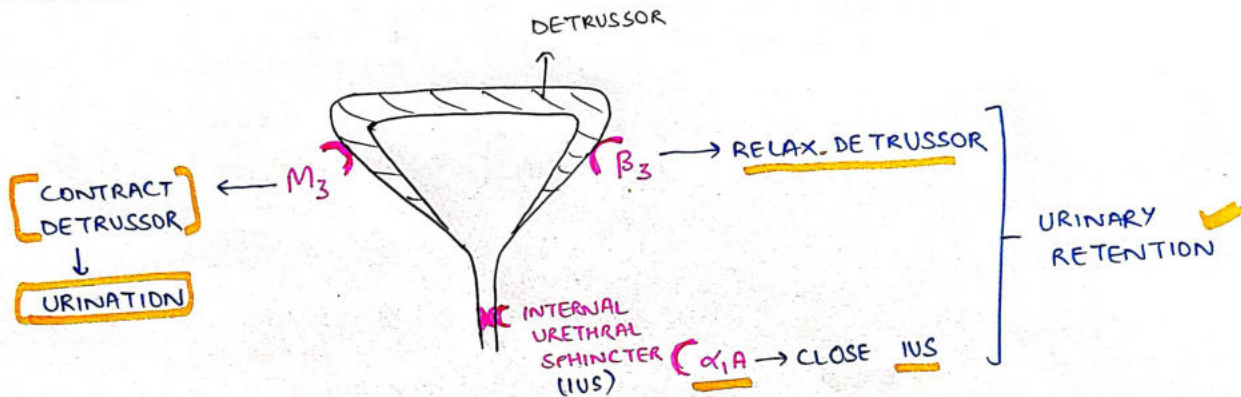
ATROPINE : (DOC) : ANTERIOR UVEITIS ✓

(DOC) : FUNDOSCOPY IN CHILDREN ✓

✓ TROPICAMIDE : (DOC) : REFRACTIVE ERROR TESTING ✓

iv) URINARY BLADDER :

M₃

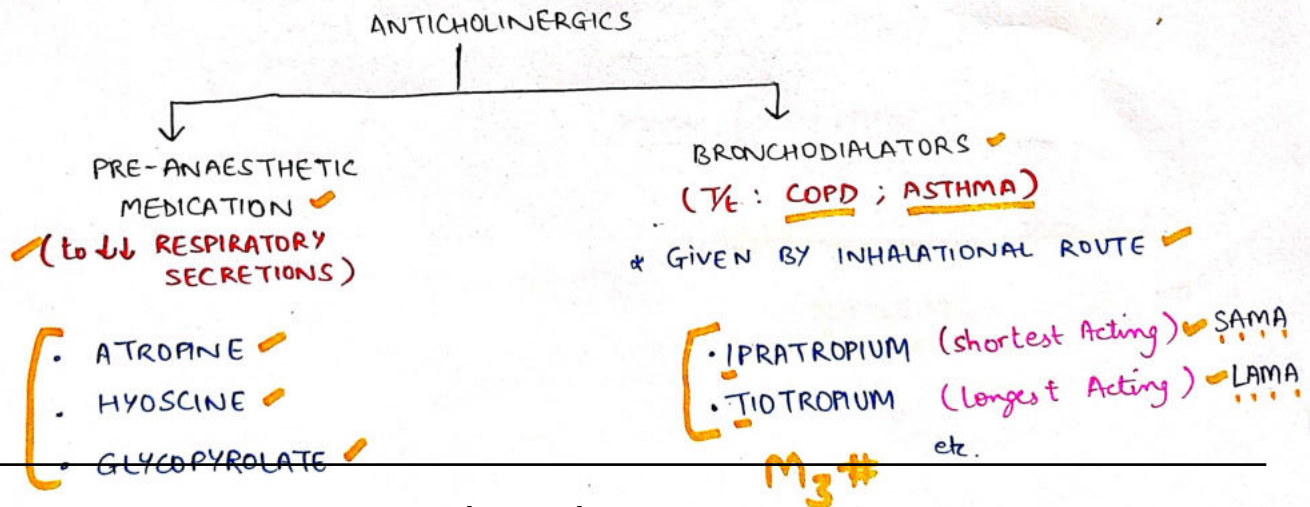


✓ **ANTI-CHOLINERGIC DRUGS** : BLOCKS M₃ (R)
✓ (b/a **VESICO-SELECTIVE AGENTS**)

↓
RELAX DETRUSSOR
↓
T_E : **URINARY INCONTINENCE**
OR
OVERACTIVE BLADDER

- DRUGS : (VESICO-SELECTIVE)
- OXYBUTININ ✓
 - FLAVOXALATE
 - FESOTERODINE
 - SOLEFENACIN
 - DAREFENACIN
- OFF SD
- } MOST SELECTIVE M_3 BLOCKERS.

V) BRONCHUS : $M_3 \text{ (R)} \oplus \rightarrow$ BRONCHO CONSTRICTION ✓
+
 $\uparrow \uparrow$ MUCOUS SECRETIONS ✓



v) GIT :- k/a ANTI-SECRETORY - ANTISPASMODICS.

~~M₁~~

~~M₃ CONTRACT~~

DRUGS :- 3° AMINES - PIRENZEPINE
TELENZEPINE } M₁ # : ↓ ACID PRODUCTION
DICYCLOAMINE } ∴ PEPTIC ULCERS.

4° AMINES - GLYCOPYRROLATE
BUSCOPAN

M₃ (R) → CONTRACTION → SPASM OF SPHINCTERS

↓
ABDOMINAL COLICKY PAIN.

DRUGS:

BUSCOPAN

GLYCOPYRROLATE

DROTAVERINE

} ANTI-CHOLINERGIC

} PDE-4 INHIBITOR

DROTIN

SUMMARY (ANTI-MUSCARINICS)

USE

C/I

① CNS

- i) TRUTH SERUM
- ii) MOTION SICKNESS
- iii) PARKINSON'S DISEASE

ALZHEIMER'S DISEASE

② HEART

- i) BRADYCARDIA
- ii) AV NODE BLOCK

TACHYCARDIA

③ EYES

- i) MYDRIATIC - FUNDOSCOPY
- ii) CYCLOPEGIC | REFRACTIVE ERROR TESTING
ANTERIOR UVEITIS

ANGLE CLOSURE GLAUCOMA

~~Xc~~

④ URINARY BLADDER

- i) OVERACTIVE BLADDER

BENIGN PROSTATIC HYPERPLASIA

⑤ BRONCHUS

- i) PRE-ANAESTHETIC MEDICATION
- ii) COPD / ASTHMA

x x

⑥ GIT

- i) ANTI-SECRETORY
- ii) ANTI-SPASMODIC

x x

ATROPINE POISONING

(BELLADONA
POISONING)

ATROPINE $\longrightarrow$ $\downarrow$ ACETYLCHOLINE

CLINICAL FEATURES : i) $\downarrow\downarrow$ SWEATING $\longrightarrow$ $\uparrow\uparrow$ HYPERTHERMIA

HOT AS HARE ✓

ii) VASODILATION $\longrightarrow$ FLUSHING OF SKIN

RED AS BEAT ✓

iii) $\downarrow$ SALIVATION
 $\downarrow$ LACRIMATION $\left\} \longrightarrow \text{DRYNESS} \begin{cases} \text{XEROSTOMIA} \\ \text{XEROPHTHALMIA} \end{cases}$

DRY AS BONE ✓

iv) MYDRIASIS + CYCLOPLEGIA

BLIND AS BAT ✓

v) CNS : EXCITATION, HALLUCINATION, DELIRIUM, CONVULSIONS.

MAD AS HATTER ✓

vi) TACHYCARDIA ($\uparrow$ HR)

vii) CONSTIPATION

viii) URINARY RETENTION

* M/C FEATURE OF ATROPINE POISONING IN:

CHILDREN : HYPERTHERMIA ✓

ADULTS : XEROSTOMIA & XEROPHTHALMIA ✓

TREATMENT : ✓ I. HOSPITALISATION.

✓ II. GASTRIC LAVAGE WITH TANNIC ACID IF POISON WAS INGESTED.

✓ III. TEPID SPONGING TO CONTROL HYPERTHERMIA.

✓ IV. DIAZEPAM TO CONTROL CONVULSIONS.

✓ V. ANTIDOTE FOR SEVERE ATROPINE POISONING : PHYSOSTIGMINE ✓

(DOC)
↓
1-4mg.

↓
3° AMINE
↓

∴ COUNTERACTS WITH
BOTH PERIPHERAL &
CENTRAL SIDE EFFECTS.
OF ATROPINE POISONING.