

5-HT

4 receptors → 5HT₁
5HT₂
5HT₃
5HT₄

(5, 6, 7 are also there,
but unknown location &
function)

5HT₁ → 1A / 1B / 1D

5HT₂ → 2A / 2C

5 Total

- 5HT_{1A}
- 5HT_{1B} / 5HT_{1D}
- 5HT_{2A} / 5HT_{2C}
- 5HT₃
- 5HT₄

5HT_{1A}

- (A) → autoreceptors
- presynaptic
- Break junction
↓
↓ serotonin

• when serotonin ↑ → anxiety.
• so to reduce anxiety
→ 5HT_{1A} agonist is given
↓
Buspirone

• Sub A here?

→ A ka Agonist Anxiety
 main dahi hai hani
 A - Autoreceptors hai.

when we give 5HT_{1A} agonist

→ it enhances brain

↓
 Serotonin ↓

↓
 Anxiety ↓

Anxiety medications

→ 5HT_{1A} agonist

↓
 Buspirone

Don't confuse with
 Bupropion → anti smoking

Buspirone → anxiety

5HT_{1B} / 5HT_{1D}

B - blood vessel. → Brain's blood vessel
 D - dural → brain blood vessel

They cause

↓
 Vasoconstriction

↓
 of Blood vessels in
 ↓
 Brain.

✓ when is VC in brain vessel
 required

↓
 during headaches

↓
 cause vasodilation
 occurs in headaches

↓
 used to treat
 migraine.

ERGOTAMINE

Triptan

Sumatriptan
 Naratriptan
 Eletriptan
 Zolmitriptan
 Rizatriptan

↓
 Doc of acute migraine

↓
 they activate

5HT_{1B} / 5HT_{1D}
 receptors

5HT_{2A/2C} - Blockers

↓
 antipsychotic drugs

↓
 typical

↓
 D₂ blocker

↓
 atypical

↓
 5HT_{2A/2C} blocker

↓
 Clozapine

side effect → weight gain

• if we stimulate 5HT_{2A} receptors

↓
 will it cause weight loss

↓
 Yes?

↓
 Lorcaserin

↓
 approved drug in
 obesity

↓
 it is 5HT_{2A/2C}

stimulant/agonist

5HT₃

• CTZ - 5HT₃ receptor

• all serotonergic receptors are

GPCRs

↓
 except

↓
 5HT₃ → ionotropic

↓
 CTZ

when CTZ is stimulated

↓
 vomiting

→ Anticancer drug

↓
 Induces vomiting

↓
 due to 5HT₃ stimulation

↓
 CINV

Chemotherapy Induces Nausea
 Vomiting

So if we block 5HT₃.

Nausea & vomiting won't occur during

chemotherapy

Serotonin - 5HT₃ blocker

ONDAN SERTRON.

GIRANI sertron.

Tropis sertron.

Palanso sertron.

Dola sertron.

ONDAN sertron.

additional use.

can reduce.

Alcohol craving.

5HT₄

located in upper GIT.

stimulated, they ↑ motility. → of upper GIT.

↑ motility: PROKINETIC

Cisapride
Mosapride
Prucalopride
Tegaserod.

5HT₄ agonist.

Dompredone.

(5HT₄ agonist) PROKINETIC are used in.

X constipation (lower GIT)

✓ GERD. ✓

Stomach acids reach Oesophagus by travelling up.

So ↑ Oesophagus, we can get it back to stomach by ↑ forward movement

✓ prokinetics

In GERD.

we can also use proton pump inhibitors

HCl secretion inhibit.

proton pump inhibitors

prazole - Omeprazole.

DOC in GERD

↓ pantoprazole.
PPI - Omeprazole.

In clinical practice, we use both.

eg: Pan D

pantoprazole

Dompredone (prokinetic)

Due.

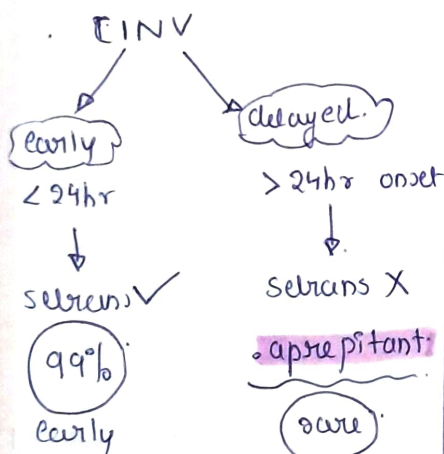
QT prolongation

↓ Cisapride is Banned

C - Cisapride.
A - Azelanzole
T - tegaserod.

↓ QT prolongation

X Banned



serotonin only works in early CINV ✓

not in delayed CINV.

* In delayed (succ)

↓ aprepitant.

5HT₃ blockers - serotonin are DOC in (3).

CINV

radio therapy

Post op.

Nausea, vomiting.

PROPHYLAXIS OF MIGRAINE

Indications

- patients having very frequent headaches (2-3 or more) month.
- attack duration > 4h.
- Headache severity is extreme.
- Headache is chronic and frequency analgesic > 10 days/month so that risk of medication overuse headache is high.
- ~~contraindications~~

β Adrenergic Blockers

- gold standard in migraine prophylaxis.
- propranolol - first choice prophylactic for both episodic and chronic migraine.
- reduce frequency & severity in upto 70% patients.
- starting dose 40mg - 80mg 2x daily.
- effect starts in 4 weeks.
- others used: Timolol, metoprolol

Tertiary Antidepressants

AMITRIPTYLINE

(25-100mg at bed time)

- effective, but side effect ↓ sedation.

- TCA better suited for patients who concurrently suffer from depression. ^{migraine.}

ANTICONVULSANTS

- valproic acid (400-1200 mg/day)
- indicated that only used in patient > 55 years.

- Topiramate ~~100mg~~ 25mg QD

↓
(50-100 mg/day)

- Cerebrupentin

- Indicated in patients refractory to other drugs or when propranolol is contraindicated.

CALCIUM CHANNEL BLOCKERS

- verapamil, flunarizine.

↓
Cerebro selective. Ca²⁺ channel blocker.

CGRP antagonists

CGRP

- monoclonal antibodies
- Erenumab

↓
injected s.c once a month in patients with severe migraine.

Gepants

- rimegepant
- Atogepant

~~not used~~

not used.

↔

SUMATRIPTAN

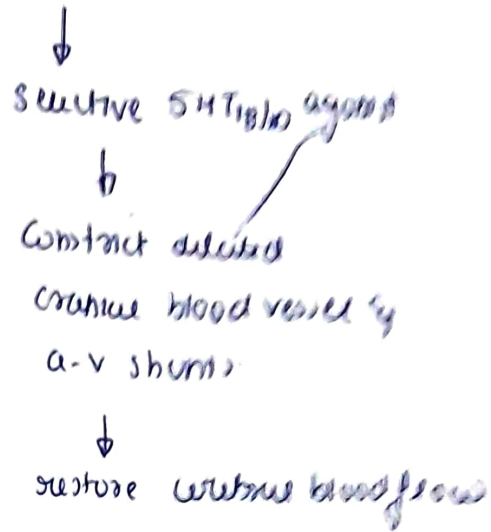
- first selective $5HT_{1B/1D}$ agonists.
- does not interact with other receptors.
 $5HT_2$, $5HT_3$, $5HT_4$, α/β adrenergic, dopaminergic, cholinergic, GABA receptors.
- Effective and better tolerated than ergotamine.

~~not used~~

Mechanism of Action

- selective $5HT_{1B/1D}$ agonist.
- abnormal dilation of cranial blood vessel →
↓
Cerebral ischemia
↓
migraine attack.

• triptan



⇒ decrease serotonin & vasoactive peptide release by acting on $5HT_{1B/1D}$ receptors on presynaptic nerve endings.

pharmacokinetics

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