

OPIOID ANALGESICS.

Natural	Semisynthetic	Synthetic
→ Morphine	→ Diacetylmorphine	→ Fentanyl
→ Codeine	→ Ethylmorphine	→ Remifentanyl
	→ Pholcodine	→ Pethidine
		→ Methadone
		→ Tramadol
		→ Tapentadol

MORPHINE -

→ Prototype, principal alkaloid in opium. Strong analgesic.

Actions

① CNS actions. - depressant effects

* Analgesia.

- very potent, efficacious.
- mediated via μ receptors
- Spinal and supraspinal components.
- visceral pain better relieved than somatic
- suppresses both perception of pain and emotional component.

* Sedation.

therapeutic dose → drowsiness
high dose → sleep - coma.

* Euphoria.

* Respiratory depression. (dose dependent)

- Rate & TV ↓

* Cough suppression.

* Hypothalamic thermoregulatory centre depressed - hypothermia

* Vasomotor centre depressed, ↓ BP in high dose.

Stimulant effects:

- * MIOSIS (Edinger - Westphal nucleus of 3rd nerve)
- * Nausea and vomiting - CTZ
- * Vagal centre - bradycardia

(2) CVS.

- * vasodilation (histamine, VMC $\downarrow$, $\downarrow$ tone of BV)
- * shift of blood from pulmonary to systemic
- * HR $\downarrow$

(3) GIT.

- * constipation (tone of colon $\uparrow$, spasm of sphincters, $\downarrow$ secretion)
- * cause biliary colic (spasm of sphincter of Oddi)
- * urinary urgency, difficulty in micturition
- * Bronchospasm

(4) Other Effects.

Tolerance and dependence $\rightarrow$ psychological & phys.
 $\uparrow$
demonstration of receptor-effector coupling mechanism.

Adverse Effects:

- $\rightarrow$ N, V, C.
- $\rightarrow$ Resp $\downarrow$, Hypotension.
- $\rightarrow$ sedation, confusion, mental clouding.
- $\rightarrow$ Blurring of vision.
- $\rightarrow$ urinary retention.
- $\rightarrow$ Idiosyncrasy and allergy.
- * $\rightarrow$ Apnoea of newborn $\rightarrow$ due to morphine administered to mother during labour.

$\rightarrow$ tolerance
 $\rightarrow$ dependence

Treatment of morphine dependence.

- Hospitalisation of the patient.
- gradual withdrawal of morphine.
- substitution with naltrexone, gradually reducing.
- pure opioid antagonist like Naltrexone.
- psychotherapy, occupational T, community t/x & rehab.

Acute morphine poisoning.

- lethal dose 250 mg.
- dead - resp depression, pinpoint pupils, coma.
- other signs - cyanosis, hypotension, shock, convulsions.
- death due to resp failure.

- t/x → hospitalise.
- resp. support.
 - maintain BP.
 - Gastric lavage with 1% pericard.

Antidote:

NALOXONE 0.4 - 0.8 mg IV
repeat every 2-3 min
till resp ↑.

Contraindications.

- Head injury.
- Benzodiazepine, COPD.
- hypotension, shock, hypovolemia.
- infants & elderly.
- undiagnosed acute abdominal pain.
- hypothyroidism, GKD, unstable personality.