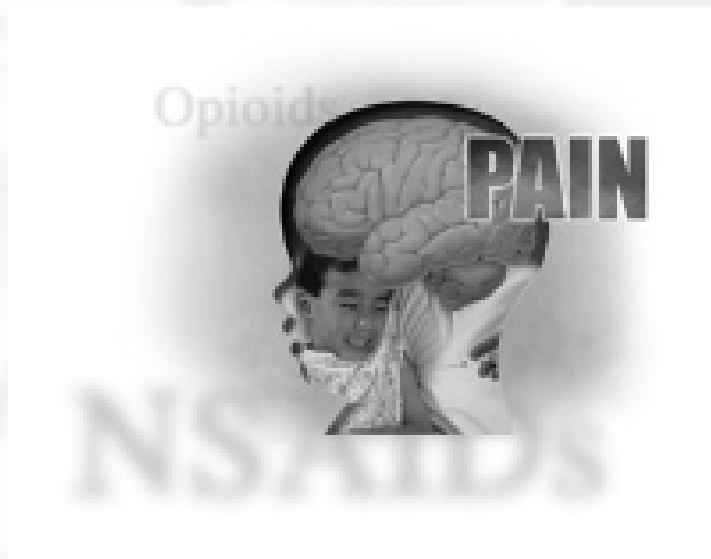


Drugs against Pain



- Anesthesia
- Narcotic Analgetics
- Local Anesthetics
- NSAIDs

General Anesthetics

State of drug-induced absence of perception of all sensations:
Unconsciousness, analgesia, amnesia and muscle relaxation

General anesthesia is usually induced with intravenous anesthetics,
and maintained with inhalation anesthetics

1846 - first surgery under ether-anesthesia; 1847 - introduction of chloroform

Originally, anesthesia was achieved with a single agent (e.g ether, nitrous oxide).
However, to satisfy all four anesthesia requirements with one agent necessitates
high dosage => increased risk of suppression of vital functions.



General Anesthetics

Inhalation anesthetics:

- Very diverse drugs: ether, nitrous oxide, halogenated hydrocarbons
- Mechanism of action largely unknown (probably inhibition of glutamate receptors and increased activity of GABA receptors)
- Actions are affected by cardiac output and ventilation rate
- Elimination predominantly through exhalation of the unchanged gas

Potency and speed of induction/recovery depend on two properties of the anesthetic:

- Solubility in blood (blood:gas partition coefficient)
 - Speed of onset is inversely correlated with the solubility in blood (more soluble => slower onset): blood acts as a reservoir that “needs to be filled”
- Solubility in lipid (oil:gas partition coefficient)
 - Determines the potency of the anesthetic
 - Minimal alveolar concentration (MAC)
= alveolar concentration at 1 atm that produces immobility in 50% of the patients exposed to a painful stimulus (usually expressed in Vol%)
 - More lipophilic anesthetics have higher potency
 - Lipophilic anesthetics gradually accumulate in body fat => prolonged “hang-over”

