

Introduction:

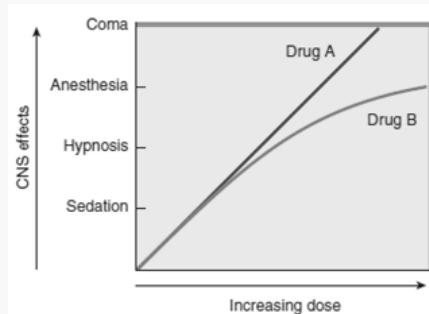
Sedation: Reduction of anxiety

Hypnosis: Induction of sleep

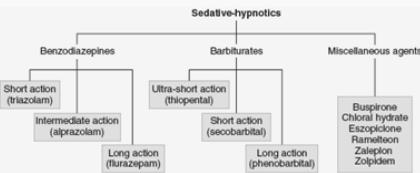
Sedative: Synonym=anxiolytic, Reduces anxiety and has a calming effect

Hypnotic: Produces drowsiness, Induces and maintains sleep

Dose-Responsive Curve for S-H Agents:



Classification:



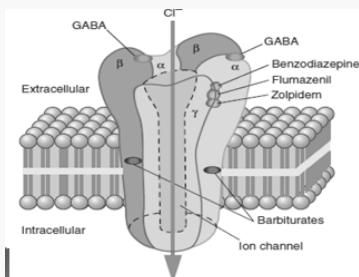
Benzodiazepines:

>**Short-acting:** Triazolam

>**Intermediate-acting:** alprazolam, lorazepam, oxazepam, temazepam

>**Long acting:** pentobarbital, phenobarbital, secobarbital

Mechanism of Action:



MOA: Benzodiazepines

Receptors for BZ present = Thalamus, limbic structures, cerebral cortex

BZ receptors =

- > Part of GABA^A receptor chloride ion channel macromolecular complex
- > Major GABA^A receptor isoform
- > Five subunits: $\alpha 1, 2\beta 2$, and $1\gamma 2$

Benzodiazepines bind between $\alpha 1$ and $\gamma 2$ subunits

Increase the **FREQUENCY** of GABA-mediated chloride ion opening

MOA: Barbiturates:

> Depress neural activity in midbrain reticular formation

> Bind to α and β subunits of the GABA^A receptor

> Prolong the action of GABA and glycine

Increase the **DURATION** of GABA-mediated chloride ion channel opening

> may also block glutamate receptors and sodium channels at higher doses

MOA: Other Agents:

Zolpidem, Zaleplon, Eszopiclone = **not** Benzodiazepines

> Bind to benzodiazepine receptor (BZ1 or $\omega 1$)

More selective to GABA^A isoforms that contain $\alpha 1$ subunits

-Fewer adverse effects than benzodiazepines

-Minimal effects on sleep patterns, less likely to cause dependence

> Increase the **FREQUENCY** of GABA-mediated chloride ion opening

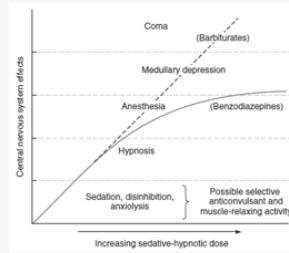
Effects:

Sedation Anticonvulsant actions

Hypnosis Muscle relaxation Psychological dependence - Compulsive use

Anaesthesia Medullary depression Physiological dependence - withdrawal symptoms if drug is discontinued

CNS Effects:



Clinical Uses:

> Anxiety states

> Sleep disorders

> Anesthesia

> Epilepsy

> Alcohol withdrawal state

Adverse Effects:

Psychomotor dysfunction: Cognitive impairment, decreased psychomotor skills, daytime sedation

Additive CNS depression: Alcohol, antihistamines, antipsychotic agents, opioids, tricyclic antidepressants

Overdose: CVS and respiratory depression, Antidote: Flumazenil



By Carm (Carmilaa)
cheatography.com/carmilaa/

Published 15th September, 2018.

Last updated 15th September, 2018.

Page 1 of 2.

Sponsored by [CrosswordCheats.com](http://crosswordcheats.com)

Learn to solve cryptic crosswords!

<http://crosswordcheats.com>

Pharmacokinetics:

- > Most are lipid soluble, absorbed well from GIT
- > May cross the placental barrier during pregnancy - may depressed neonatal vital functions
- > Detectable in breast milk - may exert depressant effects in nursing infant
- > Metabolism by hepatic enzymes - renal function = no significant effect on elimination

Pharmacokinetics:

Benzodiazepines:

- Converted to active metabolites with long half-lives
- Potential for accumulation
- Lorazepam and oxazepam do not form active metabolites
- Metabolized mainly by CYP3A4

Barbiturates:

- Extensively metabolized
- Except pentobarbital
- Excreted partly unchanged in urine

Zolpidem: No active metabolites

Drug Interactions:

- Inducers/inhibitors of CYP3A4 interact with sedative hypnotics
 - E.g. rifampicin (inducer), ketoconazole, cimetidine (inhibitors)
- Barbiturates induce metabolic enzymes

Atypical Sedative-Hypnotics:

Buspirone:

- >Partial agonist at 5-HT^{1A} receptors
- >Selective anxiolytic effects:
- Minimal CNS depressant effects = No anticonvulsant or muscle relaxation effect
- >Minimal tolerance, dependence, and abuse potential

Ramelteon, Tasimelteon:

- > Melatonin receptor agonists
- >Minimal rebound or withdrawal symptoms
- >Minimal abuse potential