

Drug	Mechanism of action	Pharmacokinetics	Pharmacological Actions	Uses	Side Effects	Interaction & Precaution
<b>1-Benzodiazepines</b> <b>Classification :</b> <b>-Short action (3-8 h):</b> triazolam , oxazepam <b>-Intermediate action (10-20h):</b> alprazolam , estazolam, lorazepam, temazepam <b>- Long action (1-3 days):</b> clorazepate, chlordiazepoxide, diazepam, flurazepam, Quazepam	Benzodiazepines act by binding to BZ receptors in the brain →enhance GABA action on brain → chloride channels opening → ↑ chloride influx to the cell → hyper- polarization →inhibition of brain.	<ul style="list-style-type: none"> <li>are lipid soluble</li> <li>well absorbed orally,</li> <li>can be given parenterally</li> <li><u>Chlordiazepoxide-Diazepam (IV only NOT IM)</u></li> <li>widely distributed.</li> <li><b>cross placental barrier (Fetal depression).</b></li> <li><b>excreted in milk (neonatal depression).</b></li> <li>metabolized in the liver to active metabolites (long duration of action-cumulative effect).</li> <li>Redistribution from CNS to skeletal muscles, adipose tissue) (termination of action).</li> </ul>	<ul style="list-style-type: none"> <li>Anxiolytic action.</li> <li>Depression of cognitive and psychomotor function</li> <li>Sedative &amp; hypnotic actions</li> <li>Anterograde amnesia.</li> <li>Minimal depressant effects of CVS and respiratory system</li> <li>Some have anticonvulsant effect: (clonazepam, diazepam)</li> </ul>	<ul style="list-style-type: none"> <li><b>Anxiety disorders:</b> <b>All types of anxiety</b> *short term relief of <u>severe</u> anxiety *General anxiety disorder *OCD * Phobia *<b>Panic attack with depression Alprazolam (antidepressant effect)</b></li> <li>Sleep disorders (Insomnia) : Triazolam, Lorazepam, Flurazepam</li> <li>Treatment of epilepsy: Diazepam – Lorazepam</li> <li><u>In anesthesia</u> <u>Preanesthetic medication (diazepam).</u> <u>Induction of anesthesia (Midazolam, IV)</u></li> </ul>	<ul style="list-style-type: none"> <li>Ataxia (motor incoordination)</li> <li>Cognitive impairment.</li> <li>Hangover: (drowsiness, confusion)</li> <li>Tolerance &amp; dependence</li> <li><u>Risk of withdrawal symptoms :</u> <u>Rebound Insomnia, anorexia, anxiety, agitation, tremors and convulsion.</u></li> <li>Toxic effects: respiratory &amp; CVS depression in large doses.</li> </ul>	<b>Drug-Drug interactions:</b> <b>CNS depressants :</b> <b>Alcohol &amp; Antihistaminics</b> increase effect of benzodiazepines <b>-Cytochrome P450 (CYT P450)</b> <b>Inhibitors :</b> <b>Cimetidine &amp; Erythromycin</b> Increase $t_{1/2}$ of benzodiazepines <b>CYT P450 inducers</b> <b>Phenytoin &amp; Rifampicin</b> Decrease $t_{1/2}$ of benzodiazepines <hr/> <b>Dose should be reduced in</b> <ul style="list-style-type: none"> <li>Liver disease</li> <li>Old people.</li> </ul> <b>Precautions</b> <b>Should not be used in</b> - <b>pregnant women or breast-feeding.</b> - <b>People over 65.</b>
<b>2-Buspirone</b>  * <b>Disadvantages</b>	<b>5HT<sub>1A</sub> agonists</b>	<ul style="list-style-type: none"> <li>acts as agonist at brain 5HT<sub>1A</sub> receptors</li> <li>rapidly absorbed orally.</li> <li>Slow onset of action (delayed effect)</li> <li><math>T_{1/2}</math> : (2 – 4 h).</li> <li>Slow onset of action (delayed effect)</li> </ul>	-Only anxiolytic - No hypnotic effect. - Not muscle relaxant. - Not anticonvulsant. - <b>No potentiation of other CNS depressants.</b> - Minimal psychomotor and cognitive dysfunctions. - Does not affect driving skills. - <b>Minimal risk of dependence.</b> - No withdrawal signs.	<b>in mild anxiety &amp; generalized anxiety disorders.</b>  <b>Not effective in severe anxiety/panic disorder</b>	GIT upset, dizziness, drowsiness	Drug Interactions with CYT P450 inducers and inhibitors
<b>3-Beta Blockers :</b> Propranolol – atenolol	act by blocking peripheral sympathetic system		-Reduce somatic symptoms of anxiety - <b>Decrease BP &amp; slow HR</b>	<b>-Used in performance anxiety.</b> - are less effective for other forms of anxiety		should be used with caution: <b>asthma,cardiac failure, peripheral vascular disorders</b>

## Antidepressant Drugs

Drug	MOA	Pharmacokinetics	Uses	Side Effects
<b>1-Tricyclic Antidepressants:</b> <b>Doxepin-</b> <b>imipramine</b>	act by reducing uptake of <b>5HT &amp; NE</b>	Delayed onset of action (weeks).	<ul style="list-style-type: none"> <li>Used for anxiety especially <u>associated with depression.</u></li> <li>Effective for panic attacks</li> </ul>	<ul style="list-style-type: none"> <li>Atropine like actions (dry mouth-blurred vision, tachycardia).</li> <li><math>\alpha</math>-blocking activity (Postural hypotension).</li> <li>Sexual dysfunction.</li> <li>Weight gain.</li> </ul>
<b>2-Selective serotonin reuptake inhibitors (SSRIs) :</b> <b>Fluoxetine</b>	acts by blocking uptake of <b>5HT</b>	<ul style="list-style-type: none"> <li>Orally</li> <li>Delayed onset of action (weeks).</li> <li>Long half life</li> </ul>	Used for panic disorder – OCD depression- Generalized anxiety disorders - phobia.	<ul style="list-style-type: none"> <li>Nausea, diarrhea</li> <li>Weight gain</li> <li>Sexual dysfunction</li> <li>Dry mouth</li> <li>Seizures</li> <li>Sleep disturbance</li> </ul>
<b>3-Monoamine oxidase inhibitors (MAOIs) :</b> <b>Phenelzine</b>	act by blocking the action of MAO enzymes	<ul style="list-style-type: none"> <li>Require dietary restriction</li> <li>Avoid wine, beer, fermented foods as old cheese that contain tyramine.</li> </ul>	Used for panic attacks and phobia	<ul style="list-style-type: none"> <li>Dry mouth</li> <li>Constipation,</li> <li>Diarrhea,</li> <li>Restlessness</li> <li>Dizziness.</li> </ul>