Short-acting Benzodiazepines

Benzodiazepines are a class of medications that potentiate the effect of GABA in the central nervous system, thereby having an inhibitory effect. The short-acting benzodiazepines can be remembered by the mnemonic, ATOM. ‘A’ stands for alprazolam, ‘T’ stands for triazolam, ‘O’ stands for oxazepam, and ‘M’ stands for midazolam. These drugs are indicated for general anesthesia induction or light sedation for procedures. They are also indicated for some patients with insomnia or anxiety, though their use is limited by their side effects. Short-acting benzodiazepines have a half-life under 12 hours. These medications must be used judiciously as they have a high potential for dependence or addiction, and can cause respiratory depression in overdose settings.



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Mnemonic

ATOM
ATOM-bomb
The acronym, ATOM, is helpful in recalling the short-acting benzodiazepines. It stands for <u>a</u>lprazolam, <u>t</u>riazolam, <u>o</u>xazepam, and <u>m</u>idazolam.

Drug Names

Alprazolam
Alpaca-Z-lamb
Alprazolam (brand name Xanax) is one of the short-acting benzodiazepines. It is indicated for anxiety disorders but can also be used for acute episodes of vertigo. Alprazolam must be prescribed carefully as it has a high risk for abuse and dependence.

Triazolam
Triangle-Z-lamb
Triazolam (brand name Halcion) is another one of these drugs and is commonly prescribed for patients with insomnia.

Oxazepam
Ox-Z-pam
Oxazepam is particularly useful for treating patients who are in alcohol withdrawal or those who have alcoholic liver disease since oxazepam does not undergo significant hepatic metabolism like the other benzodiazepines. In alcohol withdrawal, benzodiazepines essentially replace the GABAergic tone that is missing when alcoholic patients stop consuming ethanol. It may also be used in patients with anxiety.

Midazolam
Maid-Z-Lamb
Midazolam (brand name Nayzilam) is commonly used as an induction and maintenance agent for anesthesia. It can also be used for light sedation in outpatient procedures. This drug can also be used to acutely manage seizures and status epilepticus since increased GABAergic tone has an inhibitory effect on hyperactive areas of the CNS that are causing seizures.

Indications

Anesthesia Induction
A-nest Induction-duck
The short-acting benzodiazepines, particularly midazolam, are used for anesthesia induction and maintenance. For procedures that do not require general anesthesia, midazolam can be used as light sedation or for preprocedural anxiety.

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Insomnia

Taped-awake-insomniac

Short-acting benzodiazepines, particularly triazolam, may be indicated for some patients with insomnia. They are typically not used until other medications have failed, due to their high risk side effect profile.

Anxiety

Anxiety-bag

Sometimes, short-acting benzodiazepines can be helpful for some patients with anxiety disorders. They are typically not used until other medications have failed, due to their high risk side effect profile.

Considerations

Half-life < 12 Hours

Half-life- Less-than (12) Dozen

The half-life of these drugs is less than 12 hours with onset of action within approximately 15 minutes. They also undergo metabolism via the hepatic cytochrome P450 3A4 isoform (except for oxazepam).

Dependence

Dependence Ball-and-chain

Short-acting benzodiazepines have a high potential for dependence, misuse, and addiction. This is because some patients enjoy the anxiolytic and potentially euphoric effects these medications can have, and long-term use induces dependence in the CNS. If a long-term user stops taking their medication, they may enter withdrawal with symptoms including autonomic hyperactivity (sweating, agitation, tremors), psychosis, and seizures. Several management strategies can be employed in patients with benzodiazepine dependence including slow taper of long-acting benzodiazepines, psychotherapy, and seizure prophylaxis.

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