10.8: Adjuvant Analgesics

Medications used as adjuvant analgesics have been developed for other purposes but were later found to be effective to treat pain. Examples of adjuvant medications include gabapentin (an anticonvulsant) and amitriptyline (a tricyclic antidepressant). Additional information about these specific medications can be found in the “Central Nervous System” chapter. Muscle relaxants are also considered an adjuvant analgesic and are used for various musculoskeletal disorders such as multiple sclerosis. Three different types of muscle relaxants will be discussed below: baclofen, cyclobenzaprine, and tizanidine.

Baclofen

**Mechanism of Action**

Baclofen inhibits reflexes at the spinal level.

**Indications for Use**

Baclofen is used to treat muscle symptoms, such as spasm, pain, and stiffness, caused by multiple sclerosis, spinal cord injuries, or other spinal cord disorders.

**Nursing Considerations Across the Lifespan**

Baclofen is safe for patients 12 years and older.

**Adverse/Side Effects**

Adverse effects include drowsiness, dizziness or lightheadedness, confusion, nausea, constipation, and muscle
weakeness.

Abrupt Drug Withdrawal: Hallucinations and seizures have occurred on abrupt withdrawal of baclofen. Therefore, except for serious adverse reactions, the dose should be reduced slowly when the drug is discontinued.

Impaired Renal Function: Because baclofen is primarily excreted unchanged through the kidneys, it should be given with caution, and it may be necessary to reduce the dosage.

Signs and symptoms of overdose include vomiting, muscular hypotonia, drowsiness, accommodation disorders of the eye, coma, respiratory depression, and seizures.

Patient Teaching & Education

The medication should be taken as directed and abrupt withdrawal of the medication should be avoided. It may cause dizziness or drowsiness. Patients should be advised to change positions slowly because of the potential orthostatic changes that may occur. Additionally, patients should avoid concurrent use with alcohol or other CNS depressants. [1]

Now let's take a closer look at the medication grid on baclofen in Table 10.8a. [2][3]

<table>
<thead>
<tr>
<th>Class/Subclass</th>
<th>Prototype-generic</th>
<th>Administration Considerations</th>
<th>Therapeutic Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skeletal muscle relaxant and antispasticity agent</td>
<td>baclofen</td>
<td>Given parenterally and orally</td>
<td>To relieve muscle spasms and spasticity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Administer orally with milk or food to minimize gastric upset</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assess for muscle spasticity before and during therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Observe patient for drowsiness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For intrathecal administration monitor patient closely during test dose and titration and have resuscitative equipment available</td>
<td></td>
</tr>
</tbody>
</table>

Critical Thinking Activity 10.8a
A patient just started taking baclofen for muscle spasticity due to multiple sclerosis.

What teaching should the nurse provide?

Note: Answers to the Critical Thinking activities can be found in the “Answer Key” sections at the end of the book.

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Cyclobenzaprine

**Mechanism of Action**

Cyclobenzaprine reduces tonic somatic muscle activity at the level of the brainstem. It is structurally similar to tricyclic antidepressants.

**Indications for Use**

Cyclobenzaprine is used to treat acute muscle spasms.

**Nursing Considerations Across the Lifespan**

Cyclobenzaprine is safe for patients 15 years and older. Use cautiously with geriatric patients, patients with hepatic impairment, and those who take antidepressants and other CNS depressants.

In the elderly, the frequency and severity of adverse events associated with the use of cyclobenzaprine, with or without concomitant medications, are increased. In elderly patients, cyclobenzaprine should be initiated with a 5 mg dose and titrated slowly upward.

**Adverse/Side Effects**

Adverse effects include dizziness, drowsiness, dry mouth, urinary retention, serotonin syndrome with antidepressant use, or increased sedation with other CNS depressants.

**Patient Teaching & Education**

The medication should be taken as directed. It may cause dizziness or drowsiness. Patients should be advised to
change positions slowly because of the potential orthostatic changes that may occur. Additionally, patients should avoid concurrent use with alcohol or other CNS depressants. Patients should be aware that constipation may occur as a side effect of medication therapy and increased fluid intake may assist in preventing complications. [4]

**Serotonin Syndrome**

The development of a potentially life-threatening serotonin syndrome has been reported with cyclobenzaprine hydrochloride when used in combination with other drugs, such as selective serotonin reuptake inhibitors (SSRIs), serotonin norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), tramadol, bupropion, meperidine, verapamil, or MAO inhibitors (MAOIs). The concomitant use of cyclobenzaprine hydrochloride with MAO inhibitors is contraindicated.

Serotonin syndrome symptoms may include mental status changes (e.g., confusion, agitation, hallucinations), autonomic instability (e.g., diaphoresis, tachycardia, labile blood pressure, hyperthermia), neuromuscular abnormalities (e.g., tremor, ataxia, hyperreflexia, clonus, muscle rigidity), and/or gastrointestinal symptoms (e.g., nausea, vomiting, diarrhea). Treatment with cyclobenzaprine hydrochloride and any concomitant serotonergic agents should be discontinued immediately if the above reactions occur, and supportive symptomatic treatment should be initiated. If concomitant treatment with cyclobenzaprine hydrochloride and other serotonergic drugs is clinically warranted, careful observation is advised, particularly during treatment initiation or dose increases.

**General**

Because of its atropine-like action, cyclobenzaprine hydrochloride should be used with caution in patients with a history of urinary retention, angle-closure glaucoma, increased intraocular pressure, and in those taking anticholinergic medication.

**Impaired Hepatic Function**

The plasma concentration of cyclobenzaprine is increased in patients with hepatic impairment.

Cyclobenzaprine, especially when used with alcohol or other CNS depressants, may impair mental and/or physical abilities required for performance of hazardous tasks, such as operating machinery or driving a motor vehicle.

Now let’s take a closer look at the medication grid on cyclobenzaprine in Table 10.8b. [5][6]

<table>
<thead>
<tr>
<th>Class/Subclass</th>
<th>Prototype-generic</th>
<th>Administration Considerations</th>
<th>Therapeutic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skeletal muscle relaxant</td>
<td>cyclobenzaprine</td>
<td>May be administered with meals to minimize GI upset, Assess patient for pain and muscle stiffness, Use cautiously with antidepressants and other CNS depressants</td>
<td>Reduction of muscle spasm</td>
</tr>
</tbody>
</table>

Table 1.8b Cyclobenzaprine Medication Grid
A patient asks if they can drive their car while taking cyclobenzaprine.

What is the nurse’s best response?

Note: Answers to the Critical Thinking activities can be found in the “Answer Key” sections at the end of the book.

Tizanidine

Mechanism of Action

Tizanidine acts as an agonist at central alpha-adrenergic receptor sites. It reduces spasticity by increasing presynaptic inhibition of motor neurons.

Indications for Use

Tizanidine is used to treat increased muscle tone, spasms, and spasticity.

Nursing Considerations Across the Lifespan

Tizanidine is safe for adults. Dosage adjustment may be required for the geriatric population.

Adverse/Side Effects

Adverse effects include somnolence, dry mouth, hypotension, bradycardia, dizziness, fatigue, weakness or asthenia, hallucinations, liver function test abnormality, and hepatotoxicity.
Patient Teaching & Education

The medication should be taken as directed. It may cause dizziness or drowsiness. Patients should be advised to change positions slowly because of the potential orthostatic changes that may occur. Additionally, patients should avoid concurrent use with alcohol or other CNS depressants. [7]

Now let’s take a closer look at the medication grid on tizanidine in Table 10.8c. [8] [9] [10]

Table 1:8c Tizanidine Medication Grid

<table>
<thead>
<tr>
<th>Class/ Subclass</th>
<th>Prototype-generic</th>
<th>Administration Considerations</th>
<th>Therapeutic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antispasticity</td>
<td>tizanidine</td>
<td>Given orally</td>
<td>Reduction of muscle spasticity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>May be given with or without food</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assess muscle spasticity before and during therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assess blood pressure and pulse</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitor for sedation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assess liver function</td>
<td></td>
</tr>
</tbody>
</table>

Critical Thinking Activity 10.8c

A patient asks, “Why should I not drink alcohol with tizanidine?”
What is the nurse’s best response?

Note: Answers to the Critical Thinking activities can be found in the “Answer Key” sections at the end of the book.

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