Include families in the treatment of ADHD, because it affects the whole family. Family members should be taught to recognize signs of suicide ideation when atomoxetine is used.

**Client Teaching.** Client education as it relates to ADHD therapy should include the goals of therapy, the reasons for obtaining baseline data such as vital signs and the existence of other medical disorders, and possible drug side effects. Include the following points when teaching clients about ADHD therapy:

- Use caution when performing activities that require alertness.

### PROTOTYPE DRUG

**Methylphenidate (Ritalin)**

**CNS Stimulant**

### ACTIONS AND USES

Methylphenidate activates the reticular activating system, causing heightened alertness in various regions of the brain, particularly those centers associated with focus and attention. Activation is partially achieved by the release of neurotransmitters such as norepinephrine, dopamine, and serotonin. Impulsiveness, hyperactivity, and disruptive behavior are usually reduced within a few weeks. These changes promote improved psychosocial interactions and academic performance.

### ADMINISTRATION ALERTS

- Sustained-release tablets must be swallowed whole. Breaking or crushing SR tablets causes immediate release of the entire dose.
- Controlled substance: Schedule II drug.
- Pregnancy category C.

### PHARMACOKINETICS

- **Onset:** < 60 min
- **Peak:** 2 h; 3–8 sustained release
- **Half-life:** 2–4 h
- **Duration:** 3–6 h; 8 h sustained release; 8–12 h extended release

### ADVERSE EFFECTS

In a non-ADHD client, methylphenidate causes nervousness and insomnia. All clients are at risk for irregular heart beat, high blood pressure, and liver toxicity. Because methylphenidate is a Schedule II drug, it has the potential for causing dependence when used for extended periods. Periodic drug-free “holidays” are recommended to reduce drug dependence and to assess the client’s condition.

**Contraindications:** Clients with a history of marked anxiety, agitation, psychosis, suicidal ideation, glaucoma, motor tics, or Tourette’s disease should not use this drug.

### INTERACTIONS

**Drug–Drug:** Methylphenidate interacts with many drugs. For example, it may decrease the effectiveness of anticonvulsants, anticoagulants, and guanethidine. Concurrent therapy with clonidine may increase adverse effects. Antihypertensives or other CNS stimulants could potentiate the vasoconstrictive action of methylphenidate. MAOIs may produce hypertensive crisis.

**Lab Tests:** Unknown.

**Herbal/Food:** Administration times relative to meals and meal composition may need individual titration.

**Treatment of Overdose:** There is no specific treatment for overdose. Signs and symptoms of acute overdose result principally from overstimulation of the CNS and from excessive sympathomimetic effects. Emergency medical attention and general supportive measures may be necessary.

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### NURSING PROCESS FOCUS  Clients Receiving Methylphenidate (Ritalin) (Continued)

#### Planning: Client Goals and Expected Outcomes

- Experience subjective improvement in attention/concentration and reduction in impulsivity and/or psychomotor symptoms (“hyperactivity”).
- Demonstrate an understanding of the drug’s action by accurately describing drug side effects and precautions.

#### Implementation

<table>
<thead>
<tr>
<th>Interventions and (Rationales)</th>
<th>Client Education/Discharge Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor mental status and observe for changes in level of consciousness and adverse effects such as persistent drowsiness, psychomotor agitation or anxiety, dizziness, trembling or seizures. (These are adverse effects of CNS stimulants.)</td>
<td>Instruct client to report any significant increase in motor behavior, changes in sensorium, or feelings of dysphoria.</td>
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<tr>
<td>Use with caution in epilepsy. (Drug may lower the seizure threshold.)</td>
<td>Instruct client to discontinue drug immediately if seizures occur, and notify healthcare provider.</td>
</tr>
<tr>
<td>Monitor vital signs. (Stimulation of the CNS induces the release of catecholamines with a subsequent increase in heart rate and blood pressure.)</td>
<td>Monitor blood pressure and pulse properly using home equipment.</td>
</tr>
<tr>
<td>Monitor gastrointestinal and nutritional status. (CNS stimulation causes anorexia and elevates BMR, producing weight loss. Other GI side effects include nausea and vomiting and abdominal pain.)</td>
<td>Schedule regular drug holidays. Not discontinue abruptly, as rebound hyperactivity or withdrawal symptoms may occur; taper the dose prior to starting a drug holiday. Keep a behavior diary to chronicle symptoms and response to drug. Safeguard medication supply owing to abuse potential.</td>
</tr>
<tr>
<td>Monitor laboratory tests such as CBC, differential, and platelet count. (Drug is metabolized in the liver and excreted by the kidneys; impaired organ function can increase serum drug levels. Drug may cause leukopenia and/or anemia.)</td>
<td>Instruct client to: Report shortness of breath, profound fatigue, pallor, bleeding or excessive bruising (these are signs of blood disorder). Report nausea, vomiting, diarrhea, rash, jaundice, abdominal pain, tenderness, distention, or change in color of stool (these are signs of liver disease). Adhere to laboratory testing regimen for blood tests and urinalysis as directed.</td>
</tr>
<tr>
<td>Monitor effectiveness of drug therapy. (Dosage may be modified if symptoms continue.)</td>
<td>Instruct client that reductions in growth rate are associated with drug usage. Drug holidays may decrease this effect.</td>
</tr>
<tr>
<td>Monitor growth and development. (Growth rate may stall in response to nutritional deficiency caused by anorexia.)</td>
<td>Instruct client that: Insomnia may be adverse reaction. Sleeplessness can sometimes be counteracted by taking the last dose no later than 4 pm. Drug is not intended to treat fatigue; warn the client that fatigue may accompany washout period.</td>
</tr>
<tr>
<td>Monitor sleep–wake cycle. (CNS stimulation may disrupt normal sleep patterns.)</td>
<td>Instruct client to:</td>
</tr>
<tr>
<td>Evaluate effectiveness of drug therapy by confirming that client goals and expected outcomes have been met (see “Planning”). The client verbalizes improvement in attention and concentration and reduction in impulsivity and psychomotor symptoms (“hyperactivity”). The client demonstrates an understanding of the drug’s action by accurately describing drug side effects and precautions.</td>
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