Assessment

Prior to administration:
- Obtain complete health history including vital signs, allergies, and drug history for possible drug interactions.
- Assess reason for drug administration.
- Assess for contraindications of drug administration.
- Assess for urinary retention, and urinary patterns initially and throughout therapy (direct acting).
- Assess muscle strength, and neuromuscular status, ptosis, diplopia, and chewing.

Potential Nursing Diagnoses

- Urinary Incontinence (direct acting)
- Physical Mobility, Impaired (indirect acting)
- Knowledge, Deficient, related to drug therapy
- Injury, Risk for, related to side effects
- Self-care, Deficient, related to disease process

Planning: Client Goals and Expected Outcomes

The client will:
- Exhibit increased bowel/bladder function and tone by regaining normal pattern of elimination (direct acting).
- Exhibit a decrease in myasthenia gravis symptoms such as muscle weakness, ptosis, and diplopia (indirect acting).
- Demonstrate understanding of the drug’s action by accurately describing drug indications, side effects, and precautions.
- Exhibit an improvement in self-care activities.

Implementation

Interventions and (Rationales)

All Parasympathomimetics
- Monitor for adverse effects such as abdominal cramping, diarrhea, excessive salivation, difficulty breathing, and muscle cramping. (These may indicate cholinergic crisis that requires atropine.)
- Monitor liver enzymes with initiation of therapy and weekly for 6 weeks. (Hepatotoxicity may occur.)
- Assess and monitor for appropriate self-care administration. (Possible complications related to inability to self-administer may occur.)

Direct Acting
- Monitor intake and output ratio. Palpate abdomen for bladder distention. (These drugs have an onset of action of 60 minutes owing to binding of the drug to cholinergic receptors on the smooth muscle of the bladder, which relaxes the bladder to stimulate urination.)
- Monitor for blurred vision. (This is a cholinergic effect.)
- Monitor for orthostatic hypotension. (This is a cholinergic effect.)

Cholinesterase Inhibitors
- Monitor muscle strength, neuromuscular status, ptosis, diplopia, and chewing. (This determines if the therapeutic effect is achieved.)
- Schedule medication around meal times. (This will achieve therapeutic effect and aid in chewing and swallowing.)
- Schedule activities to avoid fatigue. (Excess fatigue can lead to either a cholinergic or a myasthenic crisis.)

Client Education/Discharge Planning

- Instruct client to report nausea, vomiting, diarrhea, rash, jaundice, or change in color of stool, or any other adverse reactions to the drug.
- Instruct client to adhere to laboratory testing regimen for serum blood level tests of liver enzymes as directed.
- Instruct client to:
  - Take drug as directed on a regular schedule to maintain serum levels and control symptoms.
  - Not chew or crush sustained-release tablets.
  - Take oral parasympathomimetics on an empty stomach to lessen incidence of nausea and vomiting and to increase absorption.
  - Advise client to be near bathroom facilities after taking the drug.
  - Advise client: That blurred vision is a possible side effect and to take appropriate precautions. Not to drive or perform hazardous activities until effects of the drugs are known.
  - Instruct client to avoid abrupt changes in position. Avoid prolonged standing in one place.
  - Instruct client to take medication about 30 minutes before a meal.

(Continued)
**NURSING PROCESS FOCUS**  
**Clients Receiving Parasympathomimetic Therapy (Continued)**

**Implementation**

<table>
<thead>
<tr>
<th>Interventions and (Rationales)</th>
<th>Client Education/Discharge Planning</th>
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| • Monitor for muscle weakness. (This symptom, depending on time of onset, indicates cholinergic crisis—overdose—or myasthenic crisis—underdose.) | • Instruct client to:  
  • Report any severe muscle weakness that occurs 1 hour after administration of medication  
  • Report any muscle weakness that occurs 3 or more hours after medication administration, as this is a major symptom of myasthenic crisis |

**Evaluation of Outcome Criteria**

- The client exhibits normal patterns of elimination.
- The client exhibits a decrease in myasthenia gravis symptoms.
- The client demonstrates an understanding of the drug’s action by accurately describing drug side effects and precautions.
- The client reports an increase in self-care abilities.

See Table 13.4 for a list of drugs to which these nursing applications apply.

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Record fluid intake and output and assess for urinary retention. Use with caution in clients with BPH, and do not administer to clients with mechanical obstruction of the urinary tract. Assess for fatigue and excessive salivation or sweating, because these may indicate overdosage.

For clients with myasthenia gravis, perform a baseline physical assessment of neuromuscular and respiratory function. Myasthenia gravis affects the muscles of the respiratory tract and other muscle groups owing to the destruction of nicotinic receptors on the skeletal muscles. Muscle weakness may be manifested as diplopia and ptosis of the upper eyelid. Other symptoms may include difficulty chewing, swallowing, and speaking; drooling; and inability to perform repetitive movements. Observe the client for difficulty breathing that may occur because of decreased chest expansion and extreme fatigue.

In clients diagnosed with urinary retention, palpate the abdomen to identify urine distention or discomfort. Ask the client about last fluid intake and time and amount of last urinary output. Continuously monitor vital signs, adverse drug reactions, and signs of cholinergic crisis.

**Lifespan Considerations.** For mothers who are breastfeeding, monitor the infant’s respiratory patterns and any CNS changes prior to and after feedings. Monitor elderly clients for episodes of dizziness and sleep disturbances caused by CNS stimulation from the parasympathomimetic.

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

- Take the drug as ordered and do not stop it abruptly.
- Report excessive sweating or perspiration, fatigue, and difficulty breathing.

**CHOLINERGIC-BLOCKING AGENTS (ANTICHOLINERGICS)**

Cholinergic-blocking agents are drugs that inhibit parasympathetic impulses. Suppressing the parasympathetic division induces symptoms of the fight-or-flight response.

### 13.10 Clinical Applications of Anticholinergics

Agents that block the action of acetylcholine are known by a number of names, including anticholinergics, cholinergic blockers, muscarinic antagonists, and parasympatholytics (see Table 13.5). Although the term *anticholinergic* is most commonly used, the most accurate term for this class of drugs is muscarinic antagonists, because at therapeutic doses, these drugs are selective for Ach muscarinic receptors, and thus have little effect on Ach nicotinic receptors.

Anticholinergics act by competing with acetylcholine for binding muscarinic receptors. When anticholinergics occupy these receptors, no response is generated at the neuroeffector organs. Suppressing the effects of Ach causes symptoms of sympathetic nervous system activation to predominate. Most therapeutic uses of the anticholinergics are predictable extensions of their parasympathetic-blocking actions: dilation of the pupils, increase in heart rate, drying of secretions, and relaxation of the bronchi. Note that these are also symptoms of sympathetic activation (fight or flight).

Historically, anticholinergics have been widely used for many different disorders. References to these agents, which are extracted from the deadly nightshade plant, *Atropa belladonna*, date to the ancient Hindus, the Roman Empire, and the Middle Ages. Because of plant’s extreme toxicity, extracts of belladonna were sometimes used for intentional poisoning, including suicide, as well as in religious and medicinal applications.