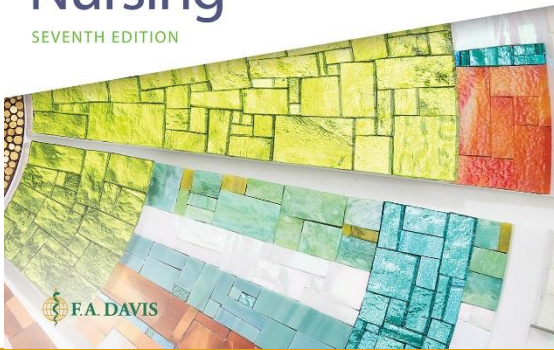


Williams | Hopper
Otmanowski | Nowicki

Davis Advantage for

Understanding Medical-Surgical Nursing

SEVENTH EDITION



Chapter 50

Nursing Care of Patients With Peripheral Nervous System Disorders

Learning Outcomes

- Identify disorders that are caused by disruption of the peripheral nervous system.
- Explain the pathophysiology, major signs and symptoms, and complications of selected peripheral nervous system disorders.
- Identify therapeutic measures used for selected peripheral nervous system disorders.

Learning Outcomes (continued)

- List common nursing diagnoses associated with peripheral nervous system disorders.
- Assist in planning prioritized nursing interventions for patients with peripheral nervous system disorders.
- Evaluate the effectiveness of nursing care.

Multiple Sclerosis

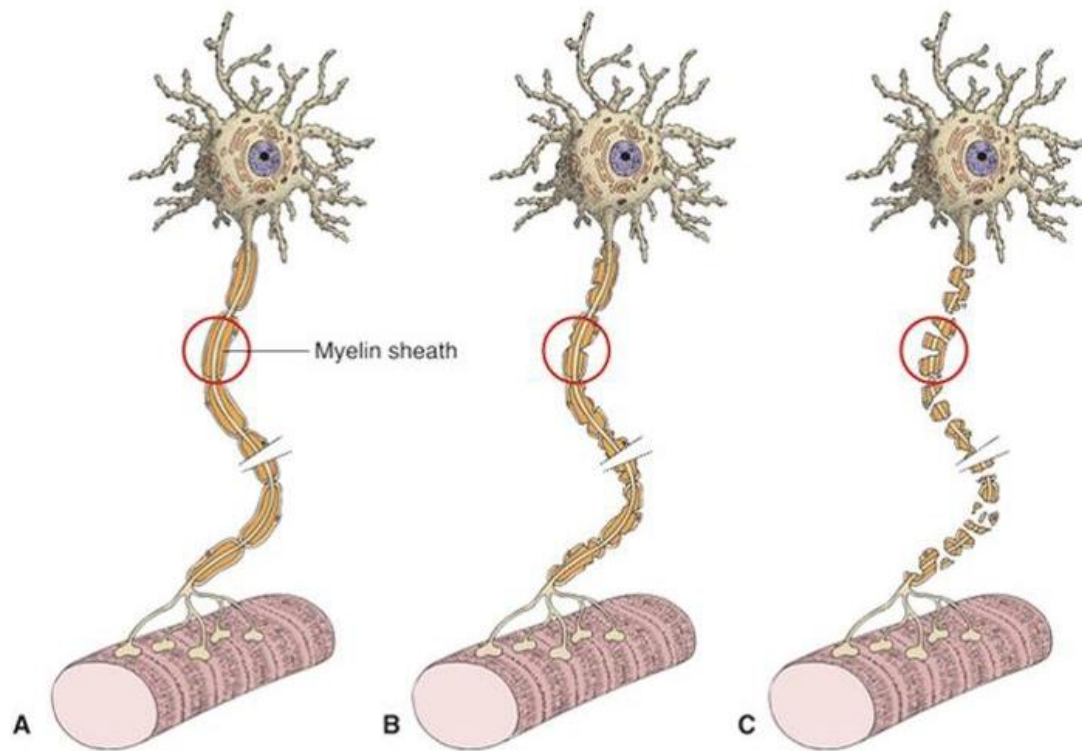
■ Pathophysiology

- Degeneration of myelin sheath
- Inflamed nerves
- Slowed or blocked nerve impulses

■ Etiology

- Unknown
- Possible autoimmune response
- Possible viral infection
- Heredity

Myelin Sheath Breakdown



- A. Normal myelin sheath
- B. Myelin beginning to break down
- C. Total myelin disruption

Multiple Sclerosis (continued_1)

■ Signs and symptoms

- Muscle weakness
- Numbness
- Fatigue
- Slurred speech
- Vision disturbances
- Vertigo
- Ataxia
- Dysphagia
- Bowel/bladder problems
- Sexual dysfunction
- Mood alterations

Disease Progression

- Relapsing-remitting (RRMS)
 - Relapses that resolve
- Secondary progressive (SPMS)
 - Patients may progress to symptoms not completely resolving after relapse.
- Primary progressive (PPMS)
 - Patients have progressive worsening of neurological condition throughout course of the disease.

Multiple Sclerosis (continued_2)

- Additional manifestations
 - Remissions
 - Exacerbations
 - Due to stress or illness
 - Immobility
 - Death usually from infection

Multiple Sclerosis (continued_3)

- Diagnostic tests
 - History and physical
 - Cerebrospinal fluid (CSF) analysis
 - Magnetic resonance imaging (MRI)

Multiple Sclerosis (continued_4)

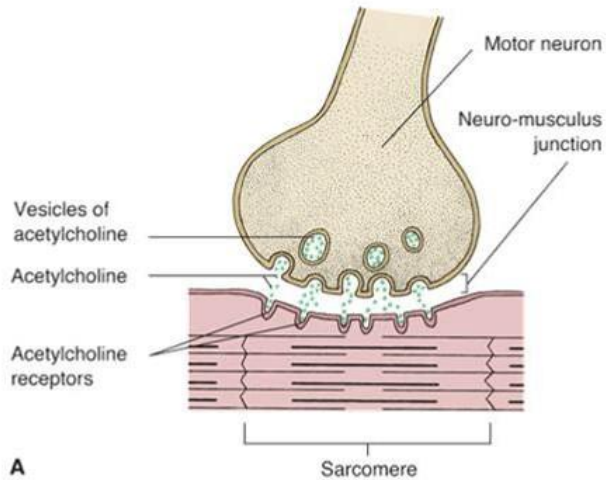
- Therapeutic interventions
 - Steroids
 - Interferon therapy
 - Immunosuppressant agents
 - Anticonvulsants
 - Muscle relaxants
 - Plasmapheresis
 - Physical, occupational, speech therapies

Myasthenia Gravis

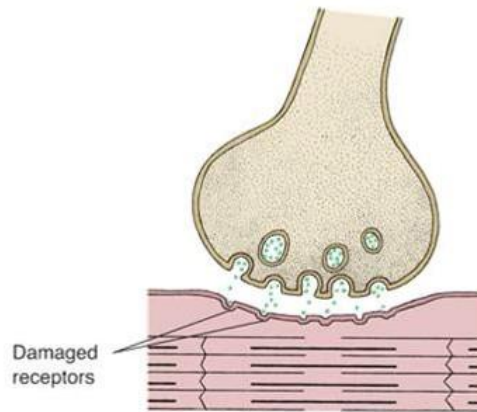
■ Pathophysiology

- Antibodies destroy acetylcholine (ACh) receptors.
- ACh cannot stimulate muscle contraction.
- Loss of voluntary muscle strength results.

Myasthenia Gravis (continued_1)



A



B

- A. Normal neuromuscular junction
- B. Note damaged ACh receptor sites in myasthenia gravis

Myasthenia Gravis (continued_2)

■ Etiology

- Unknown
- Autoimmune
- Thymus disorders
- Possible viral origin

Myasthenia Gravis (continued_3)

- Signs and symptoms
 - Progressive muscle weakness
 - Fatigue with activity
 - Ptosis
 - Difficulty chewing, swallowing
 - Difficulty breathing
 - Remissions
 - Exacerbations
 - Stress

Myasthenia Gravis (continued_4)

■ Complications

- Aspiration
- Respiratory infection and failure
- Myasthenic crisis
- Cholinergic crisis
 - Sludge

Myasthenia Gravis (continued_5)

- Diagnostic tests
 - History and physical
 - Tensilon test
 - Anti-ACh receptor antibodies
 - Electromyography (EMG)

Myasthenia Gravis (continued_6)

- Therapeutic interventions
 - Thymectomy
 - Anticholinesterase agents
 - Steroids
 - Plasmapheresis

Myasthenia Gravis (continued_7)

- Nursing process
 - Activity intolerance
 - Teach methods to conserve energy.
 - Teach avoidance of infection.
 - Teach signs and symptoms of crisis.
 - Teach medications to avoid.
 - Support group

Amyotrophic Lateral Sclerosis (ALS)

■ Pathophysiology

- Also called Lou Gehrig's disease
- Motor neurons degenerate
- Nerve impulse transmission blocked
- Muscle weakness and atrophy

■ Etiology

- Unknown
- Possible genetic predisposition

ALS (continued_1)

- Signs and symptoms
 - Progressive muscle weakness and atrophy
 - Decreased coordination
 - Muscle spasm
 - Difficulty chewing and swallowing
 - Emotional lability
 - Speech difficulty
 - Pulmonary compromise
 - Death due to pulmonary complications

ALS (continued_2)

- Diagnostic tests
 - History and physical
 - Lumbar puncture with CSF analysis
 - Electroencephalogram
 - Nerve biopsy
 - EMG

ALS (continued_3)

- Therapeutic interventions
 - Muscle relaxants
 - Riluzole (Rilutek)
 - Physical, occupational, speech therapies
 - Pain control
 - Enteral feedings
 - Prevention of infection
 - Augmentative alternative communication

ALS (continued_4)

- Patient education
 - Support groups
 - Importance of avoiding infection
 - Teach family to provide care.

Guillain-Barré Syndrome

■ Pathophysiology

- Inflammation of spinal and cranial nerves
- Segmental demyelination in ascending pattern
- Lymphocyte infiltration
- Descending remyelination

Guillain-Barré Syndrome (continued_1)

- Etiology

- Unknown
- Possible autoimmune response to virus

Guillain-Barré Syndrome (continued_2)

- Signs and symptoms
 - Stage 1: 24 hours to 3 weeks
 - Abrupt onset weakness and paralysis
 - May affect respiration
 - Autonomic nervous system effects
 - Stage 2: 2 to 14 days
 - Plateau
 - Progression stopped
 - Stage 3: 6 to 24 months
 - Recovery

Guillain-Barré Syndrome (continued_3)

■ Complications

- Respiratory failure
- Infection
- Depression
- Pneumonia
- Urinary tract infection
- Complications of immobility

Guillain-Barré Syndrome (continued_4)

- Diagnostic tests
 - Lumbar puncture with CSF analysis
 - EMG
 - Nerve conduction velocity
 - Pulmonary function testing

Guillain-Barré Syndrome (continued_5)

- Therapeutic interventions
 - Plasmapheresis
 - Oxygen
 - Mechanical ventilation
 - Emotional support
 - Rehabilitation

Guillain-Barré Syndrome (continued_6)

■ Nursing care

- Monitor vital capacity and arterial blood gases.
- Provide supportive care.
- Manage pain.
- Maintain nutrition.
- Assist with communication.
- Provide diversional activities.

Postpolio Syndrome

- Affects polio victims 10 to 40 years later
- Signs and symptoms
 - Muscle weakness
 - Fatigue
 - Pain
 - Respiratory compromise
- Treatment: Rest

Nursing Diagnoses for Neuromuscular Disorders

- *Ineffective Airway Clearance*
- *Impaired Physical Mobility*
- *Impaired Verbal Communication*

Restless Legs Syndrome

- Pathophysiology

- Dopamine and serotonin imbalance

- Etiology

- Kidney failure
 - Iron deficiency
 - Diabetes
 - Parkinson disease
 - Peripheral neuropathy
 - Family history

Restless Legs Syndrome (continued_1)

- Signs and symptoms

- Feeling of
 - Creeping crawly
 - Throbbing
 - Pulling
 - Pins and needles
- Daytime fatigue
- Insomnia

Restless Legs Syndrome (continued_2)

■ Diagnosis

- Patient report of symptoms
- Sleep history
- Laboratory test for iron deficiency
- Medication history

Restless Legs Syndrome (continued_3)

- Therapeutic interventions
 - Application of heat or cold
 - Leg massage
 - Warm baths
 - Medications to control symptoms
 - Lifestyle modifications
 - Smoking cessation
 - Regular sleep schedule
 - Alcohol avoidance
 - Exercise routine

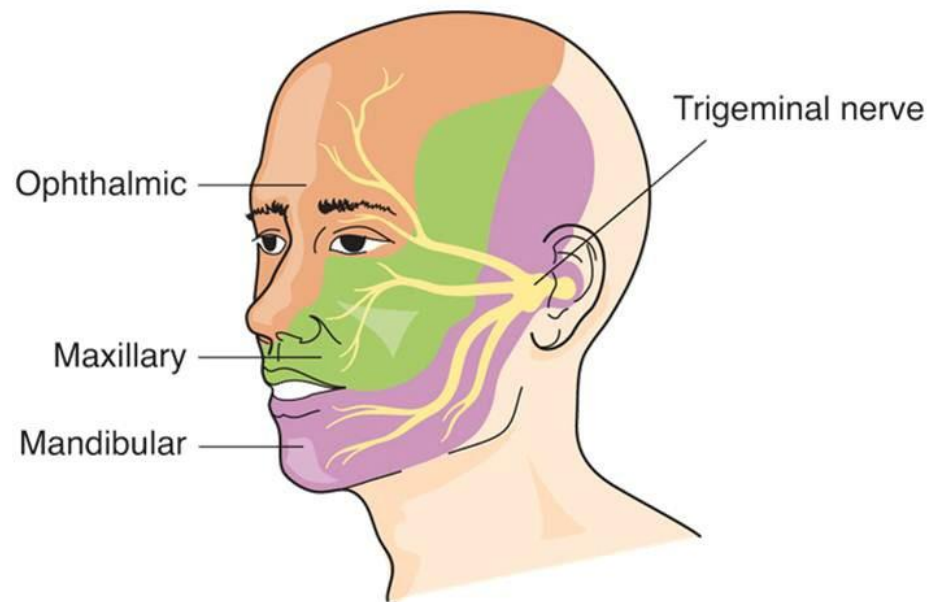
Cranial Nerve Disorders

- Trigeminal neuropathy
- Bell palsy

Trigeminal Neuralgia

- Pathophysiology
 - Irritation of the trigeminal nerve
 - Affects sensory portion of nerve
- Etiology
 - Irritation or chronic compression

Trigeminal Neuralgia (continued_1)



Trigeminal Neuralgia (continued_2)

- Signs and symptoms
 - Intense pain on one side of face
 - Forehead, cheek, nose, jaw
 - Triggered by touch, talking, other stimulation

Trigeminal Neuralgia (continued_3)

- Diagnostic tests
 - History and physical
 - Computed tomography (CT) scan
 - MRI

Trigeminal Neuralgia (continued_4)

- Therapeutic interventions
 - Anticonvulsants
 - Nerve blocks
 - Surgery to block pain signals

Bell Palsy

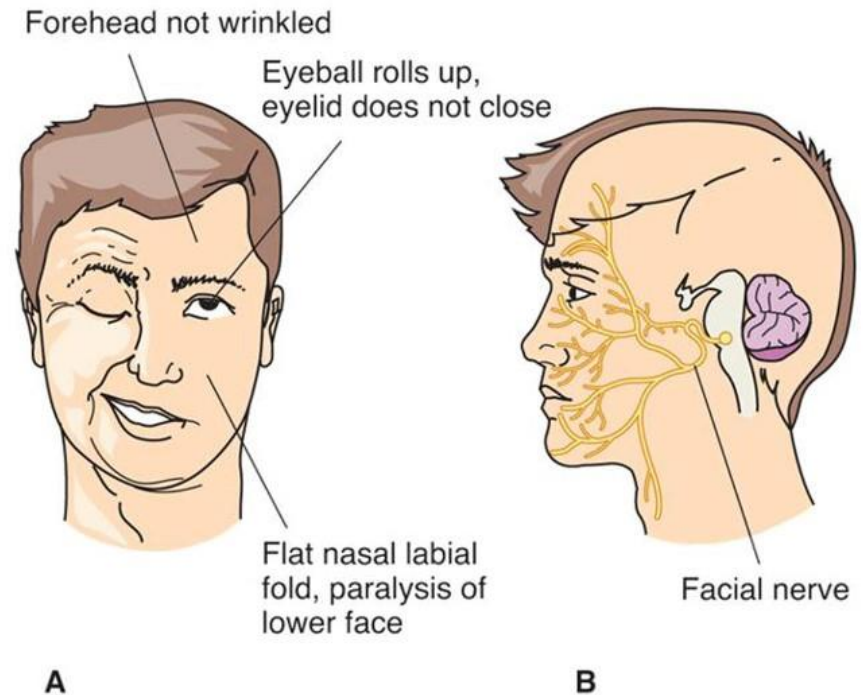
- Pathophysiology/etiology
 - Inflammation and edema of facial nerve
 - Loss of motor control
- Etiology unknown

Bell Palsy (continued_1)

■ Signs and symptoms

• One-sided facial

- Pain
- Weakness
- Speech difficulty
- Drooling
- Tearing of eye
- Inability to blink



Bell Palsy (continued_2)

- Diagnostic tests
 - History and physical
 - EMG
 - Rule out stroke

Bell Palsy (continued_3)

- Therapeutic interventions
 - Prednisone
 - Analgesics
 - Antiviral medication
 - Moist heat
 - Gentle massage
 - Facial sling

Nursing Diagnoses for Cranial Nerve Disorders

- *Acute Pain*
- *Imbalanced Nutrition*
- *Risk for Injury to Eyes (Bell Palsy)*

Practice Analysis Tip:

Linking NCLEX-PN® to Practice

- The licensed practical nurse/licensed vocational nurse (LPN/LVN) will
 - Use transfer assistive devices (e.g., gait/transfer belt, slide board, mechanical lift).
 - Assist in the care of a client experiencing sensory/perceptual alterations.
 - Assure availability and safe functioning of client care equipment.
 - Evaluate the appropriateness of health-care provider (HCP) order for client.

Practice Analysis Tip:

Linking NCLEX-PN® to Practice (continued)

- Reconcile and maintain medication list or medication administration record (e.g., prescribed medications, herbal supplements, over-the-counter medications).

Case Study With Concept Map

32-year-old Sakae Li arrived at the emergency room with report of loss of sensation and weakness in both legs and feet. A lumbar puncture showed an elevated cerebrospinal fluid (CSF) protein with a normal white blood cell count. Nerve conduction studies were consistent with demyelination. She was diagnosed with Guillain-Barré Syndrome.

Case Study With Concept Map (continued_1)

Her medical history is unremarkable except for a flu-like illness 2 weeks prior. Shortly after admission, the weakness progressed to her hands and arms. She required maximum assistance with her activities of daily living and good skin care to prevent pressure ulcers. She had an indwelling catheter inserted for urinary retention. She was closely observed for respiratory problems and blood pressure fluctuations.

Case Study With Concept Map

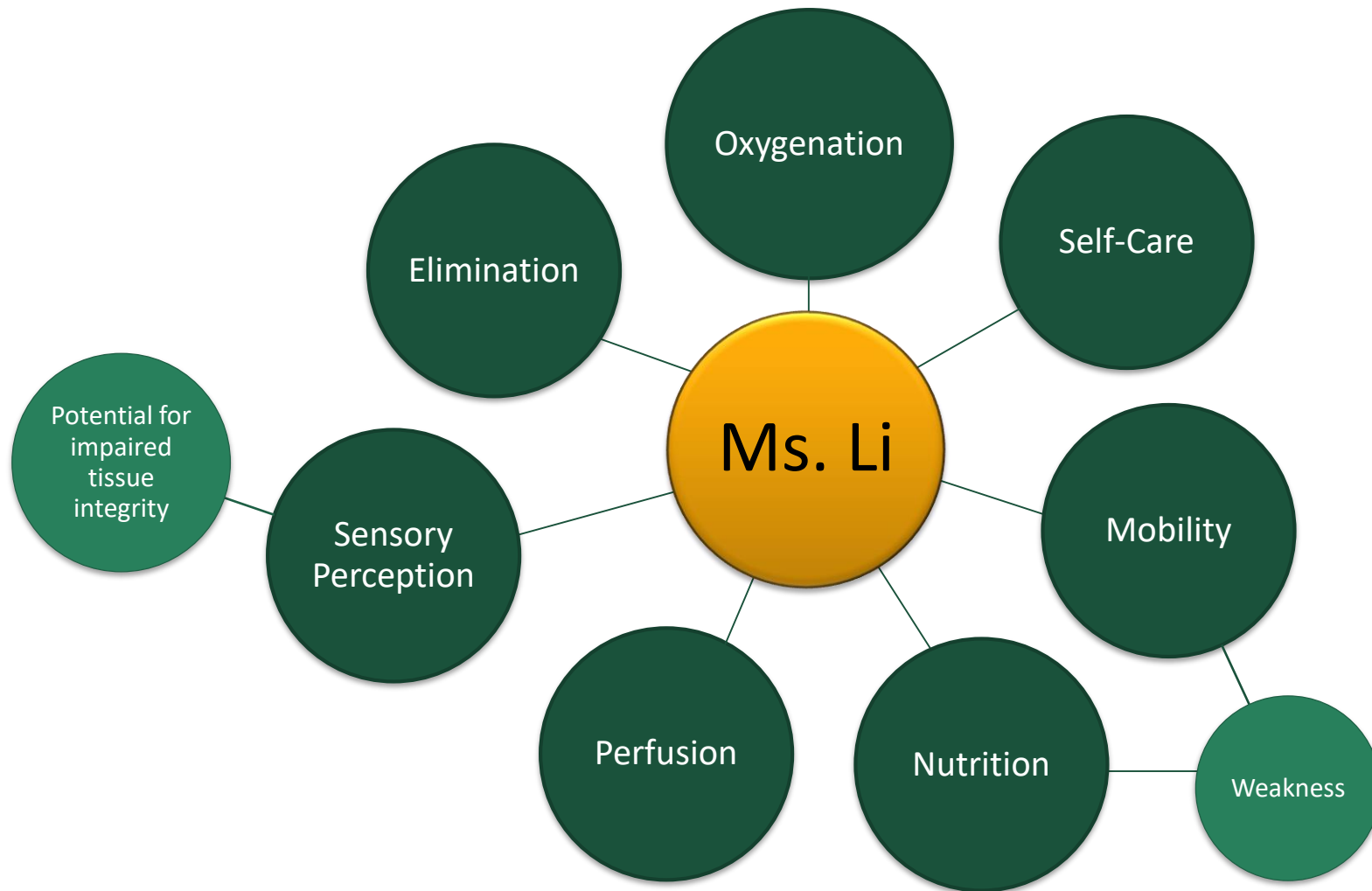
(continued_2)

Eventually, as the weakness ascended to her upper body, she required intubation and enteral feedings.

Case Study With Concept Map: Activity

- What nursing concepts would be used for Ms. Li's case?
- Can you see how the concepts in Ms. Li's care are related?
- Work with your group to create a concept map showing relationships between the concepts.
- Continue the map to show patient cues, nursing interventions, and collaborative relationships.

Ms. Li: Suggested Relationships



Activity: Cue Recognition 50.1

A patient with ALS reports that he is starting to cough and sneeze during meals.

What should you do?

Cue Recognition 50.1: Answer

- Make the patient NPO.
- Notify the HCP that the patient is at risk for aspiration.
- Collaborate with the speech therapist for swallowing assessment.

Cue Recognition 50.1: Answer Rationale

As weakness progresses, patients with ALS may begin to have problems with swallowing, putting them at risk for aspiration.

Activity: Cue Recognition 50.2

The assistive personnel reports that her new patient with myasthenia gravis is too fatigued to take his shower this evening.

What do you do?

Cue Recognition 50.2: Answer

- Change the patient to a morning bath.
- Obtain a set of vital signs on the patient, listen to lung sounds, and collect data on any patient concerns to make sure there is no illness present.

Cue Recognition 50.2: Answer Rationale

Patients with myasthenia gravis have more energy in the a.m. and more fatigue in the p.m. This may address the issue, but to be vigilant, make sure the patient does not have an illness that is causing an exacerbation.

Case Study for SBAR Hand-Off Report

You are caring for Mr. Borger who has multiple sclerosis and has had a recent decline in function. He has had multiple falls, so the registered nurse (RN) encouraged him to use his wheelchair when he goes to the dining room. The HCP has agreed to a physical therapy eval.

SBAR Hand-Off Report: Activity

- You are preparing to give a hand-off to the physical therapist.
- Think about the information you should include in the hand-off report.
- Now turn to your neighbor and communicate a hand-off report using SBAR.
- Afterwards, review suggested SBAR report on next slide.

SBAR Hand-Off Report: Suggested Answers

Situation: Mr. Borger has multiple sclerosis and has had a decline in function.

Background: Up until last week, Mr. Borger had been ambulating to the dining room independently.

Assessment: He has had several falls and now needs to use a wheelchair to go down to the dining room.

Recommendation: Mr. Borger needs therapy to continue to ambulate with an assistive device or to be fitted for a wheelchair.

Review Question #1

Symptoms of multiple sclerosis are caused by damage to which structure(s)?

1. Hypothalamus
2. Cerebral cortex
3. Cholinergic receptors
4. Myelin sheath

Review Question #1 Answer

Correct Answer: 4

Review Question #2

What are symptoms of cholinergic crisis? *Select all that apply.*

1. Constipation
2. Urination
3. Vomiting
4. Spasticity
5. Headache
6. Lacrimation

Review Question #2 Answer

Correct Answer: 2, 3, 6

Review Question #3

Which assessment takes priority in the patient with Guillain-Barré Syndrome?

1. Respiratory rate and depth
2. Blood pressure and pulse
3. Bowel sounds
4. Muscle strength

Review Question #3 Answer

Correct Answer: 1

Review Question #4

The patient with which disorder would benefit from avoiding cold windy weather?

1. Amyotrophic lateral sclerosis
2. Bell palsy
3. Trigeminal neuralgia
4. Multiple sclerosis

Review Question #4 Answer

Correct Answer: 3

Review Question #5

What nursing intervention is most important for the patient with myasthenia gravis?

1. Allow frequent rest periods.
2. Encourage daily exercise.
3. Administer lubricating eye drops.
4. Avoid touching the patient.

Review Question #5 Answer

Correct Answer: 1