Acute and Chronic Neurological Diseases: Quick Notes

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Neurological Conditions

- Guillain-Barré Syndrome

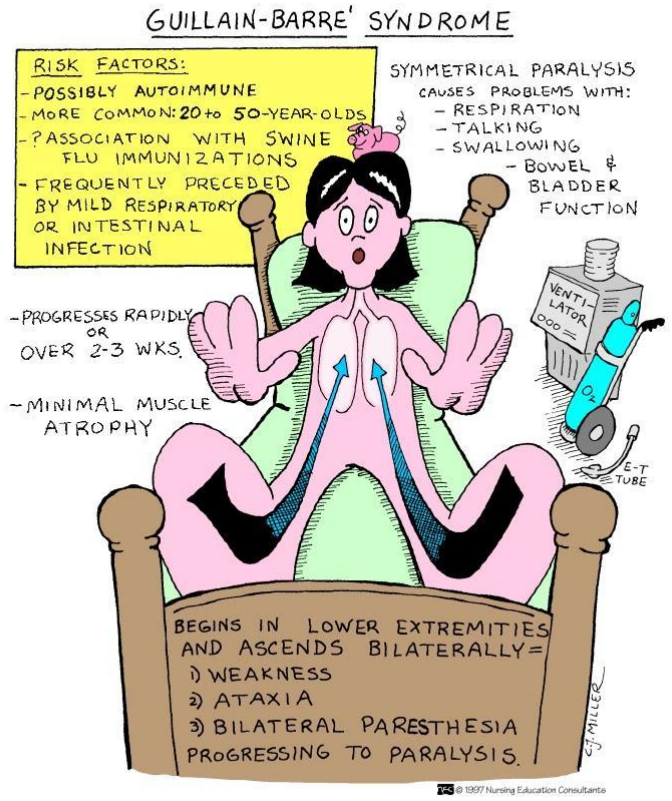
Objectives

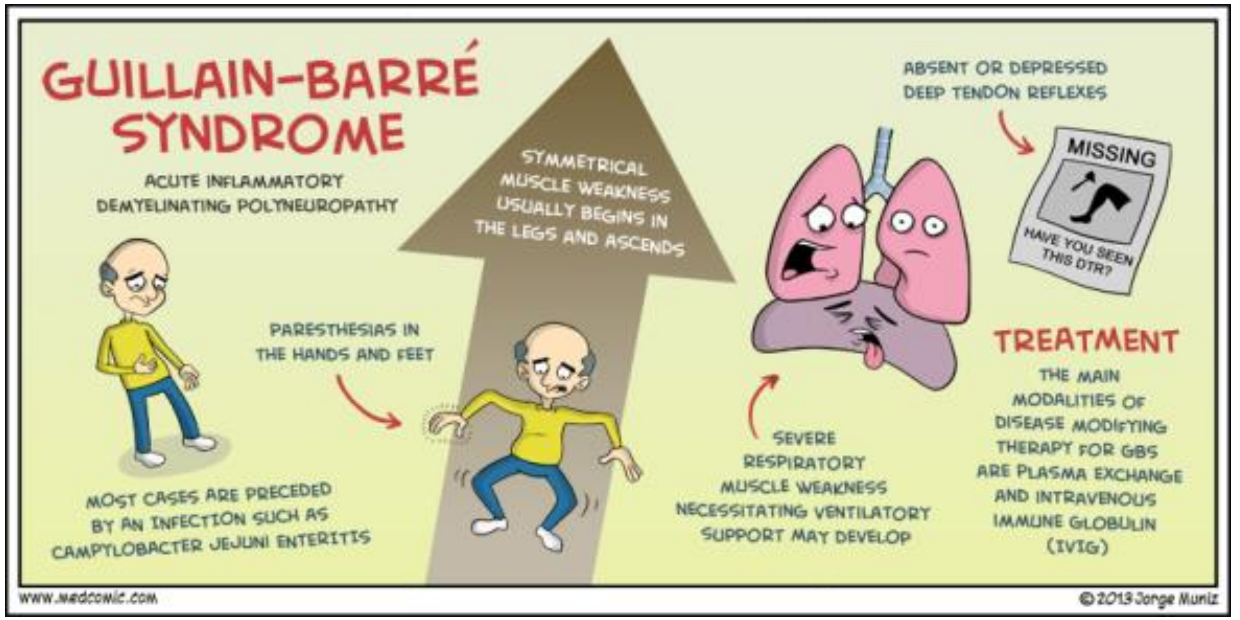
Participants will be able to:

- **Describe scope of each neurological disease/condition**
- **State Symptoms of each neurological disease/condition**
- **Identify the Goals of the Rehabilitation Nurse related the specific neurological disease/condition**
- **Describe the Nursing Interventions for each neurological condition**

Guillain Barre' Syndrome

Acute inflammatory polyneuropathy





Epidemiology

- Guillain-Barré syndrome is rare. CDC estimates only about 3000-6000 people develop GBS each year in the USA. Guillain-Barré syndrome is believed to result from an aberrant immune response that attacks nerve tissue.
- Although most people recover from Guillain-Barre syndrome, the mortality rate is 4% to 7%. Between 60-80% of people are able to walk at six months. Patients may experience lingering effects from it, such as weakness, numbness or fatigue.
- Both Genders, all ages and all ethnicities equally affected.
- GBS is more frequent in adults and people older than 50.
- Hospitalization decreased in recent years probably due to IV Immunoglobulin

Subtypes

- Acute inflammatory demyelination polyneuropathy (AIDIP)
  - Classic GBS, 90% cases in Western World
- Acute motor axonal neuropathy (AMAN)
- Acute motor sensory axonal neuropathy (AMSAN)
- Miller-Fisher syndrome
  - rare, acquired nerve disease that is a variant of Guillain-Barré syndrome. It is characterized by abnormal muscle coordination with poor balance and clumsy walking, weakness or paralysis of the eye muscles, and absence of the tendon reflexes.

Etiology

- Cause unknown
  - **Several triggers that seem to relate to an autoimmune attack on the body**
  - **Most often a Respiratory or Gastrointestinal Virus in the days to weeks prior to onset**
    - **About 1 in every 1000 people with Campylobacter get GBS, some studies found 8 of 20 people with GBS had a recent Campylobacter infection.**

Respiratory or Gastrointestinal Virus	
Campylobacter jejuni	**Cytomegaloviris**
Mycoplasma pneumoniae	**Epstein-Barr virus**
	Zika virus

  - **Less often surgery or vaccine thought to be trigger. Vaccines associated with GBS are:**
    - **Rabies**
    - **Swine Flu**
    - **Polioviris**

Clinical Manifestations

- Ascending symmetric weakness occurs
- Ascending flaccid paralysis is typical
- Loss of neurologic function & deep tendon reflexes occurs
- Resp insufficiency and failure may result from weakness in diaphragm and intercostal muscles and mechanical failure
- 50% damage to facial nerve (CN VII) causes facial diplegia
- Damage to golssopharyngeal (CN IX) and Vagus (CN X) nerves will cause dysphagia and laryngeal paralysis
- Autonomic Dysfunction is highly likely; certain if Vagus nerve is involved
- Pain, numbness & hypersensitivity to touch

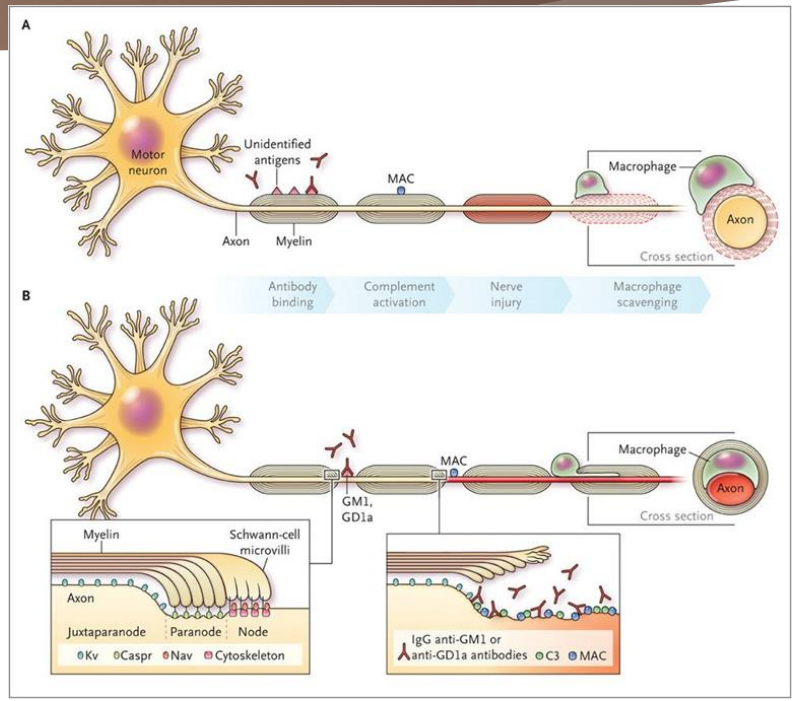
More Symptoms of GBS

In addition to muscle weakness, symptoms may include:

- Difficulty with eye muscles and vision
- Difficulty swallowing, speaking, or chewing
- Pricking or pins and needles sensations in the hands and feet
- Pain that can be severe, particularly at night
- Coordination problems and unsteadiness
- Abnormal heart beat/rate or blood pressure
- Problems with digestion and/or bladder control.

Autonomic Dysfunction in GBS

- Paroxysmal hypertension
- Orthostatic hypotension
- Cardiac arrhythmias
- Paralytic ileus
- Urinary Retention
- Syndrome of inappropriate antidiuretic hormone secretion



Pathology

- Acute, inflammatory disease affecting the myelin of the nerves in the peripheral nervous system- in some cases axonal degeneration can occur
- Immune mediated cellular and humoral response→ triggers antibody production→ antimyelin antibody causes demyelination
- Remyelination occurs slowly
- Onset can be from hours to about 3 weeks
- May Improve for 3 years after onset

Key diagnostic findings include:

- Recent onset, within days to at most four weeks of symmetric weakness, usually starting in the legs
- Abnormal sensations such as pain, numbness, and tingling in the feet that accompany or even occur before weakness
- Absent or diminished deep tendon reflexes in weak limbs
- Elevated cerebrospinal fluid protein without elevated cell count. This may take up to 10 days from onset of symptoms to develop.
- Abnormal nerve conduction velocity findings, such as slow signal conduction
- Sometimes, a recent viral infection or diarrhea.

Management Options

- Medical management urgent due to rapid onset of disease
- Medical management of symptoms- frequently inpatient and critical care units

2 teatments

- Therapeutic plasma exchange may be performed every other day for 10-15 days
- IV Immunoglobulin administration
  - Corticosteriods appear to delay recovery
  - Both treatments are equally effective if started within two weeks of onset of GBS symptoms, but immunoglobulin is easier to administer. Using both treatments in the same person has no proven benefit.

Nursing Process

- Assessment
  - Obtain a full health history
  - List of current symptoms and onset (timeline)
  - Assess Resp function
  - Assess for pain, paresthesia, numbness or paralysis
  - Assess bowel and bladder function
  - Evaluate Cranial Nerve involvement
  - Evaluate Swallowing
  - Assess nutrition and weight
  - Observe patient and family interactions

Plan of Care: Nursing Diagnoses

- Impaired physical mobility re: disease process
- Ineffective breathing pattern re: neuro-muscular weakness of respiratory muscles
- Altered nutrition: Less than body requirements re: inability to swallow
- High risk for aspiration re: dysphagia/ cranial nerve involvement
- Impaired communication re: impairment of speech muscles /cranial nerve involvement
- Risk for impaired skin integrity

Plan of Care: Nursing Diagnoses

- Risk for DVT
- Risk for constipation
- Risk for Urinary retention
- Acute pain
- Self Care deficit re: loss of function
- Altered Sensory perception due to disease process
- Potential for anxiety re: lack of control within environment
- Risk for depression re: loss of function and independence

Interventions

- Provide Pain Management
- Maintain function in unaffected limbs
- Limit atrophy to affected limbs
- Maintain oxygenation and effective breathing patterns
- Manage autonomic dysfunction
- Provide nutritional support
- Provide means of effective communication

Interventions

- Prevent skin breakdown
- Prevent DVT
- Maintain Bowel and Bladder elimination
- Provide control and comfortable environment
- Provide psychological and emotional support for patient and family
  - Educate patient and family on disease course

Rehabilitation

- Rehab Goals:
  - Help patient pace recovery to obtain maximum use of muscles
  - Aid patient in adapting to residual dysfunction
- Rehabilitation does not improve nerve regeneration and thus has no effect on return of nerve supply to muscle.
  - Strength returns in descending pattern
  - Most pts get better but severity, duration and course are variable
  - 40% patients will need Rehab
  - Over fatigue may decrease recovery:

  Pacing is Essential

Treatments

- Plasmapheresis (total plasma exhange)
- IV IG

Secondary complications

- May require ventilator support
- DVT/ PE common
- Unstable blood pressure
- Complications of Immobility
- Anemia

Variant of GBS

- Miller Fisher Syndrome
  - Abnormal muscle coordination
  - paralysis of eye muscles
  - absence of tendon reflexes

  Recovery
  - begins within 2-4 weeks
  - May complete within 6 month
  - Some people may have residual deficits

National Institute of Neurological Disorders and Stroke (NINDS).