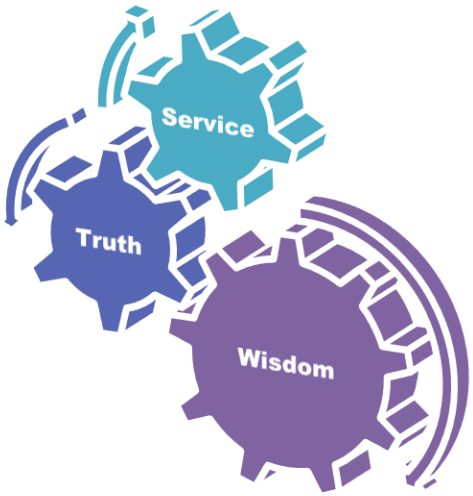

بسم الله الرحمن الرحيم

FOUNDATION MODULE

CASE BASED LEARNING (CBL)

1st Year MBBS

Motto



Vision; The Dream/Tomorrow

- To impart evidence based research oriented medical education
- To provide best possible patient care
- To inculcate the values of mutual respect and ethical practice of medicine

CBL

- Case-based learning (CBL) is a teaching method where students learn by analyzing real-life cases and applying their knowledge to solve problems or make decisions. CBL is often used in medical education, where students analyze patient cases to develop diagnostic and treatment skills.

Conducting CBL

- Identify the learning objectives
- Choose a case: Select a real-life case that is relevant to the learning objectives you have identified
- Present the case
- Analyze the case: Have students work in groups to analyze the case
- Develop hypotheses

Conducting CBL (Cont.)

- Test hypotheses: Have students test their hypotheses by using relevant diagnostic tests or other methods.
- Discuss the results
- Discuss the results
- Evaluate learning: Evaluate student learning by assessing their ability to analyze the case, develop hypotheses, and apply their knowledge of medical physiology to diagnose and treat the patient.

LEARNING OBJECTIVES

At the end of theCBL, students will be able to:

- Understand what is Paresis and Paresthesia.
- Understand the Basic principles of Physiology leading to this condition.
- Understand the Clinical Correlates and its causes.
- Similarities and differences between paresis and paresthesia.

Paresis:

- **Definition:**
- Paresis refers to a condition in which muscle movement has become weakened or impaired. You may also sometimes see it referred to as “mild paralysis” or “partial paralysis.”
- Although paresis affects your muscles, it usually occurs due to nerve damage.

Causes and types of paresis

- Several examples of causes include:
- head injury
- spinal cord injury
- pressure on the spinal cord or nerves due to things like inflammation, bone spurs, or a tumor
- stroke
- seizures
- multiple sclerosis (MS)
- cerebral palsy
- diabetes
- certain infections, such as Epstein-Barr virus and syphilis
- Guillain-Barré syndrome
- amyotrophic lateral sclerosis (ALS)

Examples of different types of paresis:

- Monoparesis.
- Paraparesis.
- Hemiparesis.
- Quadriparesis.
- Bell's palsy.
- Vocal cord paresis.
- Gastroparesis.
- Todd's paresis.
- Neurosyphilis.
- Spastic paresis. Etc..

Paresthesia:

Symptom of abnormal sensations in the body commonly described as pins and needles, tingling, prickling or even burning.

It commonly affects the:

- hands
- arms
- legs
- feet

It can be temporary or chronic. The symptoms can include feelings of:

- numbness
- weakness
- tingling
- burning
- cold

Chronic paresthesia may cause a stabbing pain. That may lead to clumsiness of the affected limb. When paresthesia occurs in legs and feet, it can make it difficult to walk.

What causes paresthesia?

1. Radiculopathy

Radiculopathy is a condition in which nerve roots become compressed, irritated, or inflamed. This can occur when you have:

- a herniated disk that presses on a nerve
- a narrowing of the canal that transmits the nerve from your spinal cord to your extremity
- any mass that compresses the nerve as it exits the spinal column

Lumber Radiculopathy:-

affects your lower back is called lumbar radiculopathy. Lumbar radiculopathy can cause paresthesia in your leg or foot. In more severe cases, compression of the sciatic nerve can occur and may lead to weakness in your legs. The sciatic nerve is a large nerve that starts in your lower spinal cord.

Cervical radiculopathy:-

involves the nerves that provide sensation and strength to your arms. If you have cervical radiculopathy, you may experience:

- chronic neck pain
- paresthesia of the upper extremities
- arm weakness
- hand weakness

2. Neuropathy:-

it Neuropathy occurs due to chronic nerve damage. The most common cause of neuropathy is hyperglycemia, or high blood sugar.

Other possible causes of neuropathy include:

> trauma
> repetitive movement injuries
> autoimmune diseases, such as rheumatoid arthritis
> neurological diseases, such as MS
> kidney diseases
> liver diseases
> stroke
> tumors in the brain or near nerves
> bone marrow or connective tissue disorders
> hypothyroidism
> deficiencies in vitamin B-1, B-6, B-12, E, or niacin
> getting too much vitamin D
> infections, such as Lyme disease, shingles, or HIV
> certain medications, such as chemotherapy drugs
> exposure to toxic substances, such as chemicals or heavy metals

	Paresthesia	Paralysis
DEFINITION	Paresthesia refers to a burning or prickling sensation that is usually felt in the hands, arms, legs, or feet	Paralysis refers to the loss of the ability to move some or all parts of the body
CAUSES	Pressure on a nerve or brief period of poor circulation, radiculopathy, and neuropathy	Strokes, car accidents, sports injuries, demyelinating diseases, motor neuron diseases, changes in genes, Bell's palsy, epilepsy or seizure, tick neurotoxins, HTLV-1 associated myelopathy
SYMPTOMS	Numbness, weakness, tingling, burning, cold, stabbing pain, clumsiness of the affected nerve, and difficulty in walking	Partly or entirely unable to move the affected parts of the body, a loss of sensation depending on the location of the injury, a steady loss of feeling and muscle control, muscle cramps, and tingling or numbness in the limbs
DIAGNOSIS	Medical history, physical examination, neurological examination, imaging tests (X-ray, CT scans, and MRI)	X-rays, imaging testing such as CT scan, MRI, myelogram, electromyogram (EMG), and spinal tap
TREATMENTS	Over-the-counter pain medication, cold compress, lifestyle adjustment, physical therapy, and managing underlying conditions	Physical, occupational, and speech therapy, rehabilitation services, adaptive equipment, assistive equipment, orthotic/ prosthetic devices, and voice-activated technology

Case Scenario

- Mrs. Qureshi is a 34 year old female who works as a secretary at a law firm and spends 80% of the day sitting in front of a computer screen. She is a mother of a 5-year old daughter and her husband works as a fireman. She was taken to the hospital after her husband thought she was having a stroke due to a right-sided facial droop. The doctors ruled out stroke as a possible option and diagnosed her with Bell's Palsy. A positive HSV1 test and a previous diagnosis of high blood pressure and diabetes helped establish the diagnosis. Mrs. S was prescribed corticosteroids to reduce inflammation and swelling as well as ibuprofen for pain as needed. The doctor recommended PT for her right sided facial weakness. As a result of her symptoms, Mrs. S complains of trouble with speaking and drinking. Eye dryness has also made it difficult for her to look at a computer screen for extended periods of time.

Examination Findings

- **Present Illness:** Patient presented to the hospital two days ago with facial drooping on the right side. Upon examination she was given a diagnosis of Bell's Palsy which may be linked to a positive HSV1 test. A diagnostic electromyography test of the facial muscles confirmed the diagnosis.
- **Past Medical History**: Type 2 diabetes and hypertension.
- **Medications**: Thiazide diuretics, metformin, corticosteroids.
- **Health Habits**: Non-smoker, three glasses of wine per week.
- **Social History**: Works as a secretary at a local law firm. Lives with her husband who is employed as fireman, and one daughter in a 2-story home.
- **Patient complaints**: Complains of difficulty drinking without spilling on herself and drooling, headache and pain at back of right jaw. She also reports trouble speaking clearly, which makes it difficult to speak to clients on the phone at work. Complains of dry right eye that worsens over the workday while looking at a computer screen.

REFERENCE BOOKS:

Guyton And Hall textbook of Medical Physiology 14th Edition.

Davidson's Principles and Practice of Medicine - 24th Edition

Oxford Handbook of Clinical Medicine

Suggested research article

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8502467/

Paresthesia Predicts Increased Risk of Distal Neuropathic Pain and muscle weakness in Older People with HIV-Associated Sensory Polyneuropathy

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Thank You!