**MID TERM EXAM**

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**Question No 1**

a. What is difference between Parkinson and Parkinsonism?

b. Write down primary and secondary clinical feature of Parkinson disease also explain physical therapy management of Parkinson patients.

1. What is difference between Parkinson and Parkinsonism

**ANSWER NO 1**

The disease Parkinson was first discovered by James Parkinson in 1817. He names the condition as paralysis agitans which means shaking palsy. But later on it was named as Parkinson.

**DIFFERENCE BETWEEN PARKINSON AND PARKINSONISM**

1. **PARKINSON DISEASE**

Parkinson disease is basically a chronic neurodegenerative disease. Progressive in nature .It occurs due to the depletion of dopamine in basal ganglia more specifically speaking in substantia nigra. Substantia nigari play a very important role in the regulation of movement .Substania nigari has two parts pars compacta and pars reticulata . Pars compacta has dopaminergic cells that produce dopamine which help in the regulation of body movements.

The disease progresses slowly it may start with unnoticeable tremors in one hand and then may further progresses. The patient may develop masked face , bradykinesia, micrographia, resting tremors

1. **Parkinsonism**

Parkinsonism is a neurological progressive chronic syndrome that occurs due the lesion or any damage to the basal ganglia specially the substania nigari dopamine production structure. It is also define as any disease or combination of diseases that give Parkinson like moment’s problems or symptoms.

For Parkinsonism the presence of Parkinson disease is not important. It may be due to medications , repeated head traumas, exposure to toxins, metabolic diseases and certain repetitive lesions.

1. Write down primary and secondary clinical feature of Parkinson disease explain physical therapy management of Parkinson patients.

ANSWER:

**PRIMARY AND SECONDARY CLINICAL FEATURES OF PARKINSON**

1. **PRIMARY CLINICAL FEATURES OF PARKINSON**

**Motor Symptoms**

● **Resting tremor**

Fine rhythmic shaky movements of the hand (frequency 4–6Hz) and often primary sign of the Parkinson diseases; initially seen in one upper extremity and involving both upper extremities with the progression of disease; the index finger and the thumb involvement is known as “pill-rolling.

**● Bradykinesia**

The term referred to the slowness of movements specially upper body involvement in parkinson

● **Hypokinesia**

Known as movement poverty, that include impassive facial expression and while walking arm swinging may be lost , fine movements may generally become difficult.

● **Rigidity**

While performing passive movements may feel difficulty, the beginning of which is unilaterally and then bilateral progression, rigidity in advanced disease for continuous rigidity the term lead pipe may be used, whereas superimposed rigidity with jerky movements causes Cogwheel rigidity.

1. **SECONDARY CLINICAL FEATURES OF PARKINSON**

**Non Motor Symptoms**

● **Neuropsychiatric symptoms**

Depression, Dementia, visual hallucinations anxiety.

● **Autonomic**

Sialorrhoea, Constipation , postural hypotension (another cause of falls), hyperhidrosis

● **Sleep disorders**

Restless leg syndrome, Rapid eye movement sleeps behavior disorder, vivid dreams, and narcolepsy

● **Sensory symptoms**

Pain (non dystonic and dystonic), paranesthesia

1. Explain physical therapy management of Parkinson patients

**MANAGMENT**

1. Pharmacological
2. Physical Therapy
3. Psychological
4. Surgical

Here we will only discus physiotherapy management

**PHYSIOTHERAPY MANAGEMENT**

* **GOALS:**
* **Maintain joint integrity.**
* **Maintain muscle**

**1. Strength.**

**2. Flexibility.**

**3. Endurance.**

**The physiotherapist will give**

1. **Strengthening exercise**

Physiotherapist will give strengthening exercises to the PD patient in order to strengthen his weakened muscles and prevent atrophy of the muscles.

1. **Balance exercises.**

* Balance Exercise Using Biodex Balance System
* Balance Exercise with Wobble board and Rocker
* Balance on one leg
* Walk on a tight rope
* Tippy toe exercise

1. **Stretching Exercise**

Stretching can help to fight muscle rigidity that may occur in Parkinson diseases. Stretching exercises may be done on regular basis for best results. Make the activities enjoyable for the patient so that they may also get them some emotional support.For shortened muscles especially

* Trunk flexors muscle.
* Knee & hip flexors.
* Neck flexors muscle.
* Shoulder internal rotators muscle

& adductors.

1. **RELAXATION EXERCISES:**

* Diaphragmatic breathing exercises. (also called "abdominal breathing" or "belly breathing")

encourages full oxygen exchange, lower blood pressure.

* Yoga.
* music therapy

1. **HYDROTHERAPY:**

A technique in which water can be used as a source of treatment, by changing water temperature and performing different exercises. Relaxation and balancing can also be achieved.

1. **TREMORS MANAGEMENT:**

Proper sleep required. Squeezing exercises may be performed, specially putty squeezing. Fist making exercises and relaxation is also important. May improve with purpose full functions of hand.

1. **GAIT MANAGEMENT**

Walking on cue cards, floor markings, treadmill, marching style, long stepped gait with broad base. Always walk with hand swinging.

1. **MICROGRAPIA MANAGEMENT**

Using a weighted pen by applying tape for additional grip may be used.

Type writing exercise may help in finger coordination.

1. **MASKED FACIAL MANAGEMENT:**

Mirror therapy may be very fruitful for mask face management. Facial expression practice may be done by Nose wrinkling, Displease, surprise and smiling.

1. **POSTURE MANAGEMENT:**

Forward leaning with arms above the head on the wall and body away from the wall. Upper limb wall slides bilaterally .Modified wall pushups.

1. **ACTIVITY OF DAILY LIFE MODIFICATION.**

Properly designed short duration activities.

Walking on daily basis

Proper nutrition

Proper sleeping

Transferring techniques

1. **FALL PREVENTION TECHNIQUES**

In open areas use **U TURN** technique

In small areas use **CLOCK TURN** technique

In stepping areas use **SIDE-STEP ARC technique**

1. **ASISTIVE DEVICES**

Walking cane for maintaining balance

Straight cane with rubber tip is better

Frames and walker may also be used

**Question no 2**

**Q.2** All body movements are controlled by brain which is also called control center , brain have different parts and different lobs , elaborate different lobes in brain and also **explain functions of different lobes.**

**Answer**

**LOBES OF BRAIN**

In humans , brain lobes are divided by a number of groves and bumps. These bumps and groves are called Gyri and sulci .

**THERE ARE FOUR LOBES OF BRAIN**

1. **FRONTAL LOBE**
2. **PARITAL LOBE**
3. **TEMPORAL LOBE**
4. **OCCIPITAL LOBE**

**FRONTAL LOBE**

The central sulcus is a space that separates the frontal lobe from parietal lobe. Lateral Sulcus separate frontal lobe from temporal lobe. It is consider as the emotional control Centre and the home of our personality.

**PARIETAL LOBE**

This lobe is present behind the frontal lobe, separated by central sulcus. Parietal lobes areas are important in integrating the sensory information, including temperature, pressure and pain. It is located behind the central furrow and occipital ridge. It is the middle part of the brain. It form a significant part of cerebral hemisphere.

**TEMPORAL LOBE**

It is lobe of the brain which is separated from the frontal lobe by lateral fissure. It is named as temporal because of its proximity to temple. It is not a standalone organ.

**OCCIPTAL LOBE**

It is the major visual processing center. They are the smallest in the four lobes. They are positioned at the back of cerebral cortex.

**Functions of brain lobes**

**Function of parital lobe:**

* 1. Plays an important role in object identification.
  2. It is the lobe of somatic senses
  3. Also help in the spatial identification.
  4. Helps in Language interpreting
  5. Helps in the memory, visual, hearing interpreting and realization .
  6. As well as help in motor centre signaling and visual perception.
  7. Coordinates information between different part of brain.

**Function of FRONTAL lobe:**

1. It plays an important role in emotion control.
2. It higher level thinking control Centre.
3. It helps in problem solving.
4. It helps in long term memory.
5. It helps in to control emotions.
6. It helps to control the social and sexual behavior.
7. It help in judgment making and language control.

**Function of TEMPORAL lobe:**

1. Helps in understanding the written and verbal material.
2. Helps in face recognition and perception
3. Play a key role in auditory processing
4. Formation of the long term memory along with visual memory
5. Interpreting the meaning of visual stimuli
6. Controlling the automatic reactions and unconscious. Such as thirst, appetite and hunger.
7. Helps in Homeostasis maintaince

**Function of OCCIPTAL lobe:**

1. It helps in mapping the visual world.
2. Vision memory required for recalling
3. Determine the properties of color in visual field
4. Assess in distance , size and depth
5. In the identification of similar stimuli, for example familiar objects and faces
6. Help in the transmission of visual stimuli to other brain part
7. Receive raw data related to visual perceptual sensors

**QUESTION no 3**

**Q.3** Explain stroke and types of stroke.

1. What are neurological complications and associated conditions in stroke?
2. Write down the Physical therapy interventions in stroke patients.

**ANSWER**

**STROKE**

Stroke also known as brain attack or cerebrovascular accident is the sudden loss or cut off blood flow to an area of the brain. The cells of the brain are deprived of oxygen and glucose that are needed for their survival. This causes major changes in the level of consciousness and sensory impairment, motor, cognitive perceptual and language.

It is the fourth leading cause of death and leading cause of long term disability. It has an incidence greater in males then in female.it chance increase with developing age. If brain is deprived of oxygen then neurological metabolism may be altered within the 30sec of the deprivation. Cell may start dying within 5 minutes of oxygen cut up.

**TYPES**

Stroke is classified as

1. **Ischemic stroke**
2. **Hemorrhagic stroke**

**Ischemic stroke**

Similarity to heart attack except it occur in brain blood vessel.It is caused by the occluded blood flow to the brain due to any cause. Occlusion may be due to blockage in the brain artery , arteries leading to brain.

Main cause of stroke in 85 percent in the population of stroke

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**Subtypes**

**Thrombotic stroke :** due to thrombus formation in the brain artery

**Emolic stroke**: Traveled embolus to brain causing stroke from other body part

**Hemorrhagic strokes**

It occurs due to the rupture of brain artery. It may lead to about 15 percent of stroke population. It may bleed in any brain part may in subarachnoid space and ventricles. It may be due to hypertension, Aneurysm, head injury, trauma and bleeding disorder.

**Subtypes**

**Sub arachnoid hemorrhage:** Bleeding in to the cerebrospinal space between pia mater and arachnoid. Cerebral aneurysm is most common cause

**Intracerebral :** within the brain bleeding. Hypertension is the most common cause.

1. What are neurological complications and associated conditions in stroke?

**NEUROLOGICAL COMPLICATIONS AND ASSOCIATED CONDITIONS**

* + - 1. It causes sensory defects
      2. It also causes motor defects
      3. It may lead to perceptual dysfunction
      4. Seizure may occur after stroke
      5. The bladder and the bowl dysfunction may occur
      6. Cardiovascular and pulmonary dysfunction
      7. May cause the dysfunction of cognation
      8. Pulmonary embolus and deep venous thrombus
      9. Increases risks of fracture and osteoporosis.
      10. Emotional altered status

1. Write down the Physical therapy interventions in stroke patients.

**PHYSICAL THERAPY INTERVENTION**

Before intervention patient age, history and name must be recorded.

The indepth examination must be done for the following steps

1. Muscle strength
2. Gait and locomotion
3. Aerobic capacity and endurance postural control
4. Functional status
5. Cranial interity
6. Motor function
7. Sensation
8. Functional status

**INTERVENTIONS**

* Interventions to Improve Strength
* Interventions to Manage Spasticity
* Interventions to Improve Functional Status
* Strategies to Improve Upper Extremity Function
* Interventions to Improve Postural Control and Balance
* Interventions to Improve Movement Control
* Strategies to Improve Lower Extremity Function
* Interventions to Improve Gait and Locomotion
* Interventions to Improve Aerobic Capacity and Endurance
* Interventions to Improve Sensory Function
* Interventions to Improve Unilateral Neglect
* Strategies to Improve Motor Learning

**EFFECTIVE PHYSIOTHERAPY FOR THE STROKE PATIENT**

1. Do stroke rehabilitation exercise on daily basis
2. Make them learn the sitting to standing position techniques for stroke patients
3. Try the therapy of constrained induce movement therapy for arm and leg paralysis
4. Mirror therapy for Hand recovery may be performed
5. Use mental relaxation exercises to boost results

**THE END**