**Mid-Term Assignment/Paper (spring -020)**

**Neurological Physical Therapy**

**DPT 8thSemester**

**Instructor: Dr. M.Jaffar**

**Time: 48-hours Max Marks: 30**

Q1: What is the difference between Parkinson and Parkinsonism?

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

**Ans:**

|  |  |
| --- | --- |
| **Parkinsonism**  | **Parkinson Disease** |
| 1.Parkinsonism is a brain disorder mainly characterized by lesion in the basal ganglia of the brain 2.Parkinsonism is the term used for abnormalities found in Parkinson disease such as tremors, balance problems, gate problems, speech problems etc.3.Primary cause is idiopathic while secondary include brain lesions ( tumors ) , repeated head injuries, certain medications which are used to treat psychosis, neurodegenerative diseases such as multiple system atrophy, metabolic conditions like chronic liver failure. | 1.Parkinson disease is characterized by depletion of dopamine producing neurons in substantia nigra of the brain.2.Symptoms of Parkinson disease usually begin gradually and get worse with time that leads to difficulty in walking, talking, coordination problems, mental problems, stiffness of body muscles and fatigue etc.3. Causes include dopamine containing neurons impairment,other causes aresame as Parkinsonism like exposure to toxins like carbon monoxide etc, trauma to the brain and many other causes. |

**Primary and secondary clinical features of Parkinson disease**

**Primary features include:**

1.Tremors ( involuntary shaking of body due to contraction and relaxation of the muscles )

Resting tremors.

2. Rigidity ( stiffness of muscles ) leads to jerky movements.

3. Bradykinesia leads to fatigue and inability to move

4. Postural instability leads to unbalance and instability.

5. Masked face i.e Hypomimia ( expressionless face ).

**Secondary features include:**

1.Mental problems/psychological problems ( dementia, anxiety, depression, fatigue etc ).

2. Speech problems ( difficulty in talking ) i.e hypophonia ( low pitched voice )

3. Sleep disturbances i.e insomnia

4.Microghraphia ( abnormally small handwriting ).

5. Sensory problems i.e pain, numbness and burning sensations.

**Physical Therapy management for Parkinson patients**

**GOALS:**

To make patient independent

To restore the patient functional movements

To reduce secondary complications

To regain physical and mental fitness

**Exercises:**

**Strengthening exercises** are given to the patient for weakend muscles

**Example :** resistance exercises.

**Stretching exercises** are given to the patient for tight and short muscles that are flexors, adductors , and internal rotators of the shoulder.

**Balance exercises** are given to the patient to retain balance and avoid patient from falling

**Example:** sustained exercises

**Relaxation exercises** for the patients to increase their mental health

**Examples:** Yoga

**Hydrotherapy** may also given to the patient for the purpose to increase their strength, balance and relaxation.

Management of physical therapy for **Micrographia** is

use of **heavy pen**

Wrapping of additional grip

Use of keyboards for typing

**Mirror therapy** is mainly used for the management of **Masked face** in Parkinson disease.

**Fist making** is effective for to **manage tremors**

**Different verbal** and **visual** **exercises** are used to **manage gait** **pattern** of the Parkinson’s patient.

**Assistive devices** are also used to prevent **falling .i.e tripod.**

**Question no.2.**

Elaborate different lobes of the brain and also explain it’s functions?

Ans:

Each side of the brain contains four lobes

1.Frontal Lobe

2.Parietal lobe

3.Temporal lobe

4.Occipital lobe

**1.Frontal lobe:**

The frontal lobe is the front part of the brain. It is the larger part of the brain and is more develop in humans than any other organism. The frontal lobe is the most common site for injury to occur.

**Functions :**

The frontal lobe is responsible for all important functions like cognitive behaviours in humans such as dicision making, personality, problem solving, memory, language and sexual behaviours etc.

The right hemisphere of the frontal lobe is responsible for the left hemisphere of the frontal lobe.

It is also responsible for primary motor functions like consciousness and key point such as speech functioning is done through frontal lobe.

**2).Parietal Lobe :**

The parietal lobe is located in the centre of the brain.

**Functions:**

The parietal lobes are centre of somatic senses. It plays vital role in identifying things around us.

This lobe is important for pain and touch interpretation.

It is also important for interpreting words as well as understanding languages .

It also help to realize temperature, vision, memory and hearing etc.

**3).Temporal lobes :**

Temporal lobes are located behind the ears.

These are the second largest lobes of the brain.

**Functions:**

The temporal lobe involve in vision and face recognition.

It also perform an important function of long term memory.

Speech and hearing are also vital role of temporal lobes.

**4).Occipital lobe:**

An occipital lobe is present behind the temporal and parietal lobes of the brain.

It is most important lobe of the brain because of the primary visual cortex. **Primary visual cortex** is the area where brain receive and input from ratina of the eye. It also contain **visual receiving area** ( where visual images of language are received ) and **visual association area** ( where languages are interpreted ).

**Functions:**

Occipital lobe is mainly involve in vision.

Occipital lobe is also responsible for interpretation of words.

Analyzing of different things into shape ,colors , movements are also done by occipital lobe of the brain.

**Cerebellum:**

Cerebellum play vital role in controlling coordination, balance and motor reflexes.

**Brainstem:**

Brainstem is responsible for conduction and tracts for pain, pressure and touch etc.

Question no: 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.

**Types of stroke :**

There are two main types of stroke namely:

1. **Ischemic stroke b) Hemorrhagic stroke**

**A): Ischemic stroke:**

An impaired or inadequate blood supply to the brain parts results in an ischemic stroke.

It occurs mostly i.e 85% of stroke occur as ischemic.

Thrombus and emboli are formed in this type of stroke.

**B): Hemorrhagic stroke:**

It occurs 15% of all the stroke.

It occurs in result of bleeding from tissues of the brain and into subarachnoid space or ventricles of the brain parts.

It occurs from RTA ( Road traffic accidents ) ,head injury, bleeding disorders etc.

Hemorrhagic stroke is further divided into two types:

**1): Subarachnoid hemorrhage:**

It is known for when bleeding occur in between the subarachnoid space and pia matter causing hemorrhage.

**2): Intracerebral hemorrhage:**

When bleeding occurs inside the brain is known as intracerebral hemorrhage .

It is caused by rupture of cerebral vessels in the brain.

**Complications and associated conditions in stroke:**

These are :

1). Loss of consciousness

2). Motor impairments

3). Sensory impairments

4). Cognitive problems

5). Speech problems

6). Seizures

7). Mental health impairment

8). Cardiovascular and pulmonary problems

9). Excretory system impairment ( bowl and bladder )

10). Bone disorders ( osteoporosis ) and deep vein thrombosis.

Physical therapy intervention in stroke patients :

**Goals:**

To improve motor learning of the patient

To enhance sensory functions

To improve strength

To manage spasticity

To restore balance etc.

**Exercises:**

The patient will provide with such interventions which will

Restore motor and sensory functions ,

Balance ,

Strength,

 To manage spasticity,

Movement control,

To improve gait pattern,

An aerobic exercises to improve the patient mental health,

Hydrotherapy to manage balance strength

Different tasks will given to the patient to restore their relearning and activity of daily life.

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