Case study

Title: - EFFECT OF PHYSIOTHERAPY ON HAND REHABILITATION IN ACUTE ISCHEMIC STROKE SURVIVOR: A CASE REPORT

ABSTRACT:

Background: Ischemic injury to the brain caused by a sudden drop in blood supply causes over 80% of strokes. Large artery blockage occurs in about 25-35 percent of strokes, and patients in this category often have severe neurological impairments. The prognosis is bleak if treatment is not started right away. Imaging of the brain after a stroke is crucial for determining the extent of tissue damage and guiding treatment.

Aim: Effect of early hand rehabilitation post ischemic stroke.

Presentation of case: A 35-year-old woman with a history of hypertension acquired aphasia, right hemiplegia, and hemisensory loss all at the same time. She was sent to the hospital's emergency room. On CT the blockage of the right middle cerebral artery revealed an acute ischemic stroke.

Discussion: There are many studies on hand rehabilitation, but this is one in its kind that will add on to the available literature on early rehabilitation of hand function post hemiplegia**.**

Conclusion: The case data confirms a diagnosis and appropriately planned physical rehabilitation care that resulted in significant and progressive improvement in daily functional goals, which is a vital key to a successful recovery to date**.**

KEY WORDS:

Acute ischemic stroke, MCA (middle cerebellar artery) Infract, Hemiplegia,

INTRODUCTION:

Ischemic stroke results in neurological deficit as the blood supply to that specific portion of brain is break up, occurs when blood supply to a part of the brain is suddenly cut off, resulting in a loss of neurologic function. Strokes are; Ischemic stroke, Haemorrhagic stroke and Transient ischemic attack .(1)

The stroke involve in this case is acute ischemic stroke. Commonest affected artery is the Middle Cerebral Artery (MCA) which is the branch of internal carotid artery. These arteries carry blood to the frontal, temporal, and parietal lobes of the brain, as well as deeper regions such as the caudate, internal capsule, and thalamus. Because of its broad supply, strokes impacting the MCA area can present with a wide range of symptoms, depending on which branches and structures are affected. Stroke results in hemiparesis and the severity depends on the area involved and the extent of lesion.

There are several risk factors for stroke, which can be classified as modifiable or unmodifiable—many of the causes of hemorrhagic and ischemic stroke overlap. Age, gender, ethnicity, and genetics are nonmodifiable risk factors for each. The risk increases with age; the danger is higher in males at a younger age, while women have a higher total chance of mortality(2). One of the major complication faced by an individual of stroke due to middle cerebral artery is reduction in mobility due to damage of premotor cortex as the premotor cortex (PMC) (Broadman 6) contributes uniquely to proximal upper and lower limb power and plays a role in the organization of motor behaviours (3)

PATIENT INFORMATION:

A 35 years old female patient, is a house wife with a dominant right hand, she had started feeling weakness in the left arm from 16/9/2021, for which she visited to Private clinic. On the next day in the morning patient had difficulty in tying her scarf and speaking like a child. Hand grip was affected. On 26/9/2021 patient was admitted in ICU of Acharya Vinoba Bhave hospital in sawangi. After 4 to 5 days patient was shifted to general ward. On 5/10/2021 patient was discharged. After some days patient again felt difficulty in eating, with left side of the body weakness. Patient again came to hospital and suggested with CBC and urine test as she also has difficulty in urine (burning micturition). Initially patient's left arm becomes weak followed with left leg. After some time face tilted on left side this all occurs before 10 days.

CLINICAL FINDINGS:-

Patient was conscious and oriented. A proper informed consent was taken from patient prior.

On observation of limb in supine position ,pillow under head ,upper extremity extended . In lower extremity, hip in slight flexion and knee is in flexion.

Posture :- Assisted as patient was not able to sit. On examination cranial nerves were intact and special sense of each hearing and visions were normal.

Tone examination by MAS left side was hypertonic for upper limb and lower limb while right side was normal

Sensory examination:- superficial and deep sensation are intact and cortical sensation were impaired.

Tone:-

Muscle tone (MAS)	Right side	Left side
Upper limb Shoulder	NORMAL	Grade1+
Elbow	NORMAL	Grade1
wrist	NORMAL	Grade1+
Lower limb Hip	NORMAL	Grade1
knee	NORMAL	Grade1+
Ankle	NORMAL	Grade1

Reflex:-

Superficial reflex	Right side	Left side
Planter response	NORMAL	Babinski positive
Abdominal response	NORMAL	Diminished (+)

Deep Tendon Reflexes are normal on right side and diminished on left side.

Investigation :-CT scan and MRI was done on 26 sept 2021. The reports revealed that their was right (middle cerebral artery) infract.

Timeline :-

Date of this opd visit	**16/10/2021**
Date of start of physiotherapy	**18/10/2021**
Date till the report	**22/10/2021**
Last date of rehabilitation	**Still ongoing**

INTERVENTIONS:

- Passive exercises for upper and lower limb- to maintain the ranges of the joints.
- Functional electrical stimulation (FES): FES will be started when the patient will initiate the movement. It will help in reducing the spasticity, pain and increase the range of motion.(9).
- Modified Constraint-Induced Therapy- will be given for approximately 10-week period, 3 times a week for 30 minutes, when the patient will be able to move her wrist and fingers voluntarily.(10)
- Positioning and compression of joints.
- Postural correction and balance training exercises.

Follow-up and outcomes:

There was a tremendous improvement in the Barthel index, STREAM Score, and the WHO-QOL post-rehabilitation.

Results:

Rehabilitation for patients with acute ischemic stroke as early as possible helps in early recovery post-stroke. Basic bed mobility training improves mobility and joint

integrity. Also the basic limb positioning and compression of joints will help in improving. She is under regular follow-up and rehabilitation in our department.

DISCUSSION:

Patients who are suffering from chronic stroke have difficulty in walking alone and around people as they are not having confidence (4). One of the stroke related disability is walking difficulty and it depends on the severity of impairment in acute stroke. Again the patient can walk approximately 150 foot (45cm) without any assistance (5). The study done by Copenhagen found that almost 80% of patients who suffered from acute stroke was able to walk within 6 to 11 weeks with minimal assistance (6). Since, from few years it is found that single or dual task training has also shown a great improvement in ADL of patients (7).Also few research's have found that treadmill training after 8 to 10 months post stroke proves beneficial for walking and thus gains the confidence of patient (8)**.**

Conclusion-

Rehabilitation has been shown to be beneficial in improving a patient's condition, resulting in a favourable outcome, as well as raising the patient's confidence and mental health. These methods open up the possibility of starting rehabilitation from the ICU itself, resulting in better outcomes. The earlier the intervention is provided, the better the outcome.

Informed consent: A proper informed consent was taken from the patient prior

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