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## **POSTER PRESENTATION**

### **TITLE: AQUA THERAPY IN NEUROLOGICAL CONDITIONS**

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### **ABSTRACT**

#### **BACKGROUND:**

Neurological conditions have been recognised as a major source of disease burden globally as they compromise the quality of life (QOL) and hinder the activities of daily living (ADL). Aquatic therapy (AT) or hydrokinesiotherapy, refers to water-based exercises utilizing the physical properties of water through off-loading the joints, easing movement, providing stability and encouraging resistance training.

#### **OBJECTIVE:**

To give an overview on the effects of AT in various neurological conditions such as Stroke, Parkinson's Disease (PD), Multiple sclerosis (MS), Alzheimer's Disease (AD), Huntington's disease (HD), Spinal Cord Injuries (SCI) and Traumatic Brain Injury (TBI).

## **METHOD:**

A review was performed with a structured literature search using Pubmed, ScienceDirect, ResearchGate and Cochrane delineating articles from 2014 - 2021.

## **THERAPY PARAMETERS:**

AT is usually carried out in a temperature controlled (24 °C to 36 °C) pool with 2-5 sessions in a week depending on the condition anywhere from two weeks to eight months. The session duration ranges from 40 to 60 minutes.

## **AQUA REHABILITATION TECHNIQUES:**

AT includes traditional functional therapies such as trunk training, the Halliwick method, the Bad Ragaz Ring method, and task-specific training. Ai chi and Watsu are Japanese techniques focusing on inducing relaxation.

## **RESULTS:**

- **MS:** Studies revealed that a 5 week aquatic exercise program helped improve muscle strength, static balance, postural control, gait performance and reduce fatigue in patients with MS.
- **Stroke:** AT was proved to be beneficial in improving balance and mobility in stroke patients. However, AT combined with land-based exercises showed better results in terms of functional capacity and QOL in patients with chronic stroke.
- **PD:** Studies revealed that the duration of AT had an impact in patients with PD. A 4 week intervention revealed no changes in gait while a 6 week intervention reported an improvement in the balance scores. However, the gait and QOL improved with a 20 weeks program (three times a week). Significant differences were also found in pain and depression variables post-treatment.
- **HD & AD:** Very few studies were done on these conditions and hence no clear conclusions for or against the use of AT were made. A case study suggested that AT may possibly enhance the cognitive and motor skills in patients with AD.
- **SCI:** An activity-specific aquatic therapy program improved gait in a patient with incomplete SCI (iSCI).
- **TBI:** AT during post-acute phase showed improvement in the motor functions and QOL in patients with severe TBI.

**CONCLUSION:**

Aquatic exercises may be effective in improving the overall function in patients with stroke, MS and PD. There is less evidence on its effect in patients with iSCI, TBI, AD and HD owing to fewer sample sizes, improper methodological plans, and failure to report details of outcomes and exercise interventions.

**KEYWORDS:**

Aquatic therapy, hydrotherapy, mobility, neurological diseases, balance, stroke, multiple sclerosis, Parkinson's disease, Alzheimer's Disease, Huntington's disease, Spinal Cord Injuries, Traumatic Head Injury.