



## Service Priorities and Programmes Electronic Presentations

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**Submitting author:** Miss Pui Yan LAM

**Post title:** Physiotherapist II, Kowloon Hospital

### **Hydrotherapy Program Enhanced the Postural Control, Balance Confidence and Mobility Performance in People with Neurological Disorders**

*Lam CPY(1), Chau RMW(1), Leung KKL(1), Cheung EYY(1), Lau DMF(1), Lau PMY(2)*

*(1)Physiotherapy Department, Kowloon Hospital*

*(2)Physiotherapy Department, Kowloon Central Cluster*

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#### **Introduction**

Hydrotherapy was shown to be effective in enhancing functional task performance in patients with chronic stroke and Parkinson's disease. However, there is paucity of literatures in the contextual enhancement of the patients' ability to maintain functional balance and confidence in everyday life complex challenging condition.

#### **Objectives**

To investigate the effectiveness of an adjunct novel hydrotherapy program in enhancing advanced postural control, balance and mobility performance, and self-perceived balance confidence in chronic neurological patients.

#### **Methodology**

Patients with chronic neurological disorders (onset>6months) who could walk without manual assistance were recruited from the out-patient physiotherapy unit of Kowloon Hospital. Clients were excluded if they have any contraindication to hydrotherapy. Subjects in control group received 60-minute conventional physiotherapy three times a week for 6 weeks while that of intervention group received additional 30-minute hydrotherapy program twice a week for 6 weeks. The hydrotherapy exercise focused on upright task-specific exercise against water turbulence to stimulate the balance control especially vestibular system. Assessments were conducted at baseline, program completion(at week 6) and 12 week. Outcome measures included posturography study by Sensory Organization Test(SOT), Berg Balance Scale(BBS) for fall risk assessment, Timed Up and Go(TUG) test for mobility performance and Activities-specific Balance Confidence(ABC) scale for self-perceived balance confidence. Two-way repeated measures ANOVA was used to analyzed the treatment effect.

#### **Result**

Sixty patients were recruited (Intervention group n=41, mean age=46.7+/-13.0 years; control group n=19, mean age=53.9+/-13.1 years). Demographic characteristics and baseline performance between two groups were comparable. Both groups demonstrated significant improvement in all outcome parameters upon program completion (except vestibular ratio in the control group) with greater improvement in the intervention group. The self-perceived balance confidence was significantly related to the vestibular balance control. It's possible that with the improved balance from the fast responding vestibular postural control, the patients were more confident in performing mobility tasks. The enhanced vestibular balance control was maintained upon 12-week follow up. It's believed that the hydrotherapy program could enhance the functional mobility performance and advanced postural control in complex daily life condition such as outdoor walking at night or getting on-off escalator in chronic neurological patients. The benefit of enhanced vestibular system (quicker defense against fall) through balance retraining in safe and fun water medium is valuable and insightful for advanced functional balance rehabilitation.