The Effectiveness of the Physiotherapy Vestibular Rehabilitation Program for Patients with Peripheral Vestibular Hypofunction

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Introduction
Poor compensation or maladaptive postural control strategies may be developed in some patients with peripheral vestibular hypofunction. This brings the limitation in physical activities and psychological stress to the patients. An exercise-based treatment program can promote vestibular adaptation and substitution. Since September 2013, patients with vertigo problem were referred for physiotherapy vestibular program by the Department of Ear, Nose and Throat, Tuen Mun Hospital.

Objectives
1. To improve vertigo for patients with vestibular weakness
2. To reduce the level of handicap induced by dizziness
3. To improve activities of daily living for patients with vestibular weakness

Methodology
Patients diagnosed with vestibular hypo-function were recruited to Vestibular Rehabilitation program. Patients were individually assessed with musculoskeletal screening, postural control, oculomotor control, coordination and somatosensory aspect. They would then receive 8 to 10 sessions of physiotherapy training with gaze stabilization, habituation, dynamic and static balance with adjunct of muscle strengthening exercise. The clinical outcomes were collected at baseline and the last session of the program. The self-perceived handicapping effects in emotion, functional ability and physical performance of the patient was evaluated by Dizziness Handicap Inventory (DHI). The static balance was assessed by the duration of single leg balance while the dynamic balance was assessed by the length of functional reach. The intensity of the vertigo was measured by visual analogue scale (VAS). A patient satisfaction survey was conducted to collect the patient’s feedback.
**Result**

A total of 27 patients with mean age 47.7±10.7 years old, were enrolled. Physical function and psychological aspect, which was significantly improved as reflected by DHI which reduced from 38+/−20.3% to 8.6+/−17.7% (p<0.05). There was also significant curtailing of the intensity of vertigo as shown by reduction of VAS from 6.3+/−2.1 to 2.5+/−2.2 (p<0.05). Moreover, there was significant increase in duration of single leg standing (left leg: 15+/−8.3 seconds to 21+6.2 seconds; right leg: 16.4+/−7.5 seconds to 21.5+/−6.2 seconds; p<0.05) and length of functional reach (from 22.1+/−7.7cm to 27.1+/−3.8 cm; p<0.05). Furthermore, the patient satisfaction survey showed that 100% of participants showed that they were satisfy the program.

**Conclusions** The Vestibular Rehabilitation Program had significant positive role in improving the vertigo and activities of daily living as well as alleviation of handicap feeling for the patient with peripheral vestibular hypofunction.