



Service Priorities and Programmes
Electronic Presentations

Convention ID: 575

Submitting author: Ms Jocelyn CHAN

Post title: Senior Physiotherapist, KH, KCC

Freeing the Tied Hand of Sub-acute Hemiplegia - Effects of Augmented Task Specific Rehabilitation Program for Regaining Motor and Functional Recovery

Chan JSP, Chow ESL, Lee SKF, Lai JWY, Chan MYL, Chan ZPY, Ng AKM, Chau RMW

Physiotherapy Department, Kowloon Hospital

Keywords:

Augmented task specific rehabilitation program

Functional electrical stimulation

Motor and functional recovery

Paretic upper limb

Sub-acute stroke

Introduction

Literature reported that only one-third of stroke survivors could regain functional hand use. Task specific training was effective means but often found it was beyond the capability of patients. An augmented task-specific rehabilitation program incorporating preprogrammed Functional Electrical Stimulation(FES) was formulated to enable the stroke patients to achieve the intensive active task practice exercises for regaining motor and functional recovery through overcoming the hurdle of disability.

Pre-programmed electrical stimulation was used to trigger the required functional movement and the patients could participate actively in task specific exercise in synchronization with FES.

Objectives

To determine the effectiveness of the augmented task-specific rehabilitation program in promoting motor & functional performances of paretic upper limb in patients with sub-acute stroke.

Methodology

The program evaluation was a single-group pre- and post-intervention comparison. Patients(N=9) diagnosed with stroke presenting with upper limb dysfunction, admitted to Kowloon Hospital were recruited during the one-month sampling period. Exclusion criteria included receiving medication affecting neuromuscular performance, severe upper limb contractures and patients with cardiac-pacemaker.

The program included 10-sessions of 60-minute conventional physiotherapy such as neuro-facilitation & physical training with additional 30-minute FES incorporated repetitive reach-to-grasp task exercises. The FES would trigger the functional movement by stimulating the required upper limb muscles to enable the patients to conduct the required task. Outcome measures included Fugl-Meyer Assessment(FMA) upper-limb-section for impairment of paretic UL, Modified Barthel Index(MBI) and JAMAR hand-held Dynamometer(UK) for grip-strength of both hands for functional measures.

SPSS23.0 was used for statistical-analysis with alpha of 0.05. To analyze training-effects, Wilcoxon Signed Ranks test was conducted to assess the difference of FMA & MBI & Paired-samples T-Test for grip strength.

Result

The patient's characteristics were found to be represented sample of stroke patients with mean age of 66.56 ± 15.13 , 55.6% being male & 77.8% being cerebral infarction versus 22.2% as haemorrhage. The average stroke onset was 23.44 ± 16.21 days. Significant upper limb improvement in FMA was found after intervention (50.67 ± 13.33 versus 35.11 ± 16.67 ; $p \leq 0.05$) alongside with significant functional improvement in MBI (from 40.99 ± 20.75 to 59.44 ± 25.23 ; $p \leq 0.05$) and paretic grip-strength (from 5.33 ± 7.10 to 9.44 ± 6.60 kgf; $p \leq 0.05$) gain. The preliminary findings supported the use of an augmented task-specific rehabilitation program in enabling the sub-acute stroke patients for intensive task specific exercises for regaining motor and functional recovery. This laid the foundation for further planning of clinical research.