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Submitting author: Mr Wing Chiu CHAN

Post title: Physiotherapist I, Haven of Hope Hospital, KEC

Motor Recovery of the Severely Impaired Paretic Upper Limb after Mirror Therapy in Sub-acute Stroke- A Randomised Controlled Trial

Chan WC(1), Au-Yeung SY(2)

(1) Physiotherapy Department, HHH (2) Department of Rehabilitation Science, The HKPolyU

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Introduction

Only low percentage (5 to 20%) of stroke patients will regain full upper limb (UL) function by 6 months post-stroke. Severely impaired UL function in stroke is associated with poor rehabilitation outcome. It is crucial to devise an effective rehabilitation protocol to enhance the motor recovery of paretic UL in the early phase post stroke.

Objectives

To determine the effectiveness of MT on the motor recovery of severely impaired paretic UL in patents during sub-acute stroke.

Methodology

It was a prospective assessor-blind RCT. Patients with diagnosis of first super-tentorial stroke for less than a month and admitted to Haven of Hope Hospital were included if they aged 35 or above, presented with severe to moderate UL impairment and able to comprehend and follow instructions. The exclusion criteria were visual impairment, cognitive impairment, aphasia, visual neglect, and history of impaired UL function. Subjects were randomized into Mirror Therapy (MT) and control group. In addition to conventional rehabilitation treatment in the hospital, MT group received 2 sessions of 30 minutes MT daily, 5 days a week for 4 consecutive weeks. During MT, subjects performed a standardized bilateral UL exercise while watching the reflective mirror image of the non-paretic UL from a mirror placed between the ULs. The control subjects practiced the same bilateral UL exercise without the presence of a mirror. The outcome measurements were Fugl-Meyer Assessment Upper Extremity (FMA-UE) and Wolf Motor Functional Test (WMFT) for motor impairment and functional ability of the UL respectively. The outcome measurement were performed before and after the intervention. Within- and between group differences were analyzed by SPSS version 17 with level of significance set at 0.05.

Result

Thirty-four subjects (MT=15, control=19) completed the study. There was no difference between MT and control groups in the demographic characteristics and baseline FMA-UE and WMFT except the MMSE ($p=0.019$). Both MT and control groups showed improvement in FMA-UE and WMFT after program but the 2 groups were not different. MT was not superior in promoting motor recovery of the severely impaired paretic UL of patients during sub-acute stroke when compared to the control involving a similar intensity of bilateral UL exercise.