

Parallel Sessions

PS10.2 Technology Advancement and Innovation**13:15** Room 423 & 424

Innovating Robotic Assisted Gait Therapy in Hong Kong East Cluster Enhances Clinical Outcomes

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Introduction

Stroke is the most common cause of disability in the developed world and can severely degrade patient's walking function. Therefore, improving gait performance is one of the main goals of rehabilitation. In the past, manually assisted gait training was rather difficult due to patient's body weight, poor limbs control and high physical demand on physiotherapists.

Robotic Assisted Gait Therapy (RAGT) provides sufficient support for intensive training at a more physiological gait pattern which is coherent with the principles of motor learning. The sophisticated control strategies will further improve patients' balance, coordination, spasticity, muscle strength and gait symmetry. It also relieves physical demands from physiotherapists. Besides, RAGT could also enhance functional improvements for patients with incomplete spinal cord injuries. RAGT promotes supraspinal plasticity in the motor centres for locomotion. It is believed that the combination of both RAGT and conventional physiotherapy will result in the best functional outcomes. RAGT system was introduced in Hong Kong East Cluster since February 2016 as an adjunct therapy for conventional physiotherapy in neurological rehabilitation.

Objective

To evaluate the additional clinical benefits for neurological patients who received combined RAGT and conventional physiotherapy.

Methodology

Patients indicated for RAGT, who matched the inclusion criteria, such as impaired walking ability, adequate range of joint motions and sufficient cognitive ability were screened by trained physiotherapists. Patients selected for RAGT received 12 sessions of RAGT in addition to conventional physiotherapy. Outcome measures, such as Modified Functional Ambulation Classification (MFAC), Modified Rivermead Mobility Index (MRMI), Berg Balance Scale (BBS), Functional Independence Measure (FIM) for transfer, walking and stair climbing were assessed before and after 12 sessions of RAGT. Patients receiving conventional physiotherapy with similar demographic data were randomly assigned to the control group for comparison. Mann-Whitney U test was applied to compare the changes between two groups. A patient satisfaction survey was conducted.

Results

64 patients were recruited and assigned to the intervention group (n=32) and control group (n=32). Significant differences between the two groups were found in MFAC, MRMI, BBS and transfer and walking domains of FIM ($p \leq 0.05$). The results showed that combining RAGT with conventional physiotherapy lead to additional improvement in functional mobility and balance than conventional physiotherapy alone. 95 % of the patients agreed that RAGT improved their gait performance according to the survey.

Conclusions

RAGT combines with conventional physiotherapy resulted in additional clinical improvements in functional mobility and balance for neurological patients.

Public Health Implications

RAGT is an effective adjunct therapy to better improve functional outcomes for patients with neurological disorders.