



**Service Priorities and Programmes
Electronic Presentations**

Convention ID: 342

Submitting author: Mr Cheuk Wai WOO

Post title: Physiotherapist I, Queen Elizabeth Hospital, KCC

Improvement in walking ability after Robot-Assisted-Gait-Training in children with cerebral palsy after Botulinum toxin A – A case review

WOO CW (1), LEUNG KPA (1), WU SP (2), LAU MYP (1)

(1) Physiotherapy Department, Queen Elizabeth Hospital, (2) Department of Paediatrics, Queen Elizabeth Hospital

Keywords:

Children

Cerebral palsy

Botulinum toxin A

Robot-assisted-gait-training

Introduction

Robot assisted gait training (RAGT) is an innovative and promising therapy for children with cerebral palsy (CP). It was found to improve Gross Motor Function Measure (GMFM) dimension D (standing) and dimension E (walking) and gait speed in children with cerebral palsy. Systematic review showed that use of Botulinum toxin type A with physiotherapy improves walking in children with cerebral palsy. RAGT provides intensive task specific gait training, which matches the requirement for children with cerebral palsy after receiving Botulinum toxin A. However, no study is found on RAGT for children with cerebral palsy after receiving Botulinum toxin A at present.

Objectives

The aim of this study was to investigate the effectiveness of 10 weeks of RAGT intervention on improvement in walking ability in children with CP after receiving Botulinum toxin A.

Methodology

A prospective pre-post-intervention design was used. The subject, in addition to convention physiotherapy interventions, received 45 minutes of RAGT, 2 times per week, for 10 weeks. Subject demographic was taken and outcome measure was assessed at baseline (T1); 10 weeks from baseline (T2) and 20 weeks from baseline (T3). Primary outcome measures were gait speed, cadence, step length, step length differential, step time and step time differential measured using instrumental gait analysis system. Secondary outcome measure was GMFM-66 dimension D (standing) dimension E (walking).

Result

Subject was female and aged 2 year 7 months at the time of first physiotherapy session. She was Gross Motor Classification System (GMFCS) level I and ambulated independently and unaid on level ground. She had received botulinum toxin A for

bilateral gastrocnemius one-week prior to initial physiotherapy intervention. After completion of a 10-week interventions, improvement was found in selected gait parameters (gait speed and step time differential) and GMFM-66. No adverse effect was observed throughout intervention period and at follow-up. In conclusion, RAGT is a quality and safe intervention for children with cerebral palsy, as young as less than three year of age, after receiving botulinum toxin A. Positive effect was seen in outcomes measures. Further study using more vigorous methodology can be carry to investigate the effectiveness of RAGT for children with cerebral palsy after Botulinum toxin A.