

Efficacy of Neuro - Developmental Therapy Based Gait Training in Correction of Gait Pattern of Post Stroke Hemiparetic Patients

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Abstract

The purpose of the study is to compare the efficacy of Neuro- Developmental Therapy (NDT) based gait training with conventional physiotherapy in re-education of gait in post stroke hemiparetic patients. 24 post stroke hemiparetic subjects (n=24, males=20, females=4) aged 40-70 yrs (mean age 56.13 yrs) affected for a period of 4-6 weeks and having ability to walk, with or without walking aid, were included in the study. All the subjects were assessed for step length, stride length, cadence, gait velocity and pressure areas in different parts of the foot using Harris mat. The quality of gait was assessed using Wisconsin Gait Scale (WGS). All the subjects were conveniently divided into two groups viz Group A and Group B. Group A received NDT based gait training along with conventional physiotherapy whereas Group B received only conventional physiotherapy for a total period of 8 weeks. After statistical analysis, a significant improvement was observed in step length affected (t= 6.82, t= 4.25), step length unaffected (t= 7.27, t= 4.78), stride length (t= 7.63, t= 4.41), gait velocity (t= 3.34, t= 4.69), cadence (t= 4.56, t= 6.08) and WGS scores (t= 6.44, t= 5.86) in both the groups. Whereas significant decrease in the spasticity (MAS–Hip, t=3.46 , MAS–Knee, t=3.73, MAS–Ankle, t=3.73) was only observed in the group receiving NDT based gait training along with conventional physiotherapy (Group A). However, no statistically significant difference was observed in the high and low pressure areas of upper, middle and lower parts of foot in both the groups after the intervention. In between comparison of the two groups showed a significant difference in the improvement in the step length of affected side (t=3.94), step length of unaffected side (t=4.31), stride length (t=5.1) as well as WGS scores between the two groups. The present study has highlighted that both, the conventional physiotherapy as well as addition of NDT based gait training, are effective in improving the step length, stride length, cadence, velocity and WGS scores in post stroke hemiparetic patients. But in comparison to conventional physiotherapy alone, addition of NDT based gait training is more effective in improving step length, stride length, spasticity and WGS scores in these patients.

Key words: Stroke, Hemiparesis, NDT based gait training, Conventional physiotherapy, Harris mat

Introduction

Stroke is the leading cause of adult disability and inpatient rehabilitation admissions (AHA, 2003, DeJong *et al*, 2005). It is the most important single cause of disability in people living in their own home (Hankey, 1999). According to International Stroke trial reports, at 6 months after stroke, about 20 % are dead,

50 % are independent and 30 % are dependent in self care (Weir *et al*, 2001). An estimated 70% of the patients who survive a stroke are unable to walk independently during the first three to four weeks post stroke. Dependence in mobility is one of the primary reasons of admission for inpatient rehabilitation after stroke. Much effort goes into helping these patients regain the ability to walk at least in the home prior to discharge. In