Research Article

Relationship Between Fear of Falling, Balance Impairment and Functional Mobility In Stroke Patients

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Abstract

Introduction: Fear of falling in stroke subjects is a major cause of loss of independence, which has an effect on the physical function in them. The aim of the study is to find whether a relationship exist among fear of falling, balance impairment and functional mobility in stroke population. **Method:** The sample consisted of 37 stroke subjects in sub-acute and chronic stage of age between 35 years to 65 years (mean=48.91, SD ± 10.67). Fear of falling was measured using Falls Efficacy Scale (FES), balance was measured using Berg Balance Scale (BBS) and functional mobility was assessed using the Timed Up and Go test (TUG). **Result:** The data was analyzed using Pearson co-efficient of correlation to examine the relationship between FES, BBS and TUG test and with t-test. The correlation co-efficient between fall efficacy and balance performance was –0.75 (p£ 0.0001) and correlation coefficient between fall efficacy and TUG was 0.60 (p£ 0.000068). **Conclusion:** This study concluded that there was a significant association between fall efficacy, balance performance and functional mobility among subacute and chronic patients with stroke. This relationship has an implication for the development of rehabilitation programs that aim to improve the balance confidence as well to diminish its impact on function in stroke patients.

Keywords: Fear of fall; Balance; Mobility; Stroke

Introduction

Stroke (cerebrovascular accident) is defined as a rapid loss of neurological function caused by a blockage in the brain's blood supply. [1] Stroke is a clinical illness characterized by rapidly growing focal neurological deficit which causes abnormalities in brain function that continues for longer than 24 hours. Patients who have had a stroke frequently lose functions of the motor, sensory, and higher cognitive skills to varying degrees, resulting in loss of balance [2]. They present with loss of voluntary movements, spasticity, and difficulty to move independently [3]. Following stroke, people experience major abnormalities in coordination, balance, gait, and gross motor function, limiting their ability to perform activities of daily living. [4] Thus, patients who have had a hemiparetic stroke are at a higher risk of falling due to balance issues. [5] Balance is a complex motor skill that necessitates the central organization of vestibular, visual, and somatosensory information in order to activate the musculoskeletal system, which results in synchronized eye movements, posture, stance, and locomotion. [6] The term balance is an umbrella concept with four subcategories of motor skills; stationary postural control, voluntary movements, involuntary movements, and external disturbances.

A fall is described when a sudden unintended loss of balance leaves the individual in contact with the floor or another surface such as a step or chair. [7] Fear of falling is presented as a demoralizing cycle of confidence loss and decreased physical activity, which leads to reliance on the care giver of the subjects. [8] Stroke patients experience fall at least once during the course of disease, which creates a feeling of fear in their minds. Although they do not experience fall, they are aware of the condition of their limbs which is inadequate to balance their body which would ultimately result in falls. [9]

Functional mobility is a product of the contribution of many systems, working together within their own maturational level, to produce movement that is suited for that specific human, at that specific time, in that specific environment, to complete a specific task. [10] This mobility is divided into three categories of stability needs or primary balance control functional goals: (1) maintaining specific postures in which the center of mass is repositioned within an existing (e.g. reaching) or newly established base of support (i.e. postural control); (2) facilitating voluntary movements in which the center of mass is repositioned within an existing (e.g. reaching) or newly established base of support (e.g. walking) and (3) reacting to external stimuli (i.e., reactive balance control). [11] Functional mobility is described as coordinated trunk, upper extremity, and lower extremity movements that can develop and be maintained if several key elements are present like adequate mobility and range of motion, appropriate muscle tone and strength, evidence of variability and isolation of movements, postural stability and central control, antigravity control, and proximal stability. [12]

There is limited literature studying the relationship among patients with fear of fall, balance performance and functional mobility among patients with stroke. Evidence suggests the relationship between fear of falls, balance issues and functional mobility in community dwelling older people. The aim of the

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