THE RELATIONSHIP BETWEEN CENTER OF GRAVITY AND CLINICAL BALANCE TESTS AND FALLS EFFICACY IN CHRONIC STROKE POPULATION

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INTRODUCTION: Stroke is the fourth most common cause of death and the leading cause of adult disability in the United States1 and each year, approximately 795,000 people experience a stroke2. The high prevalence combined with the potential disability after stroke make it the most commonly treated physical disability by rehabilitation therapists3. People with chronic stroke generally face with problem such as balance impairment, altered balance self-efficacy, and worry about falls4.

OBJECTIVE: This study aimed to examine the relationship between centre of gravity (COG) and Berg Balance Scale (BBS) and falls efficacy in patients with chronic stroke.

METHODOLOGY: We compared the results of BBS, COG and Falls Efficacy Scale (FES-I). Data regarding with COG gathered from Neurocom Balance Master System as sway velocity. Trial of Org 10172 in Acute Stroke Treatment (TOAST) was used to classify ischemic stroke subtypes. Data were analysed using the IBM SPSS Statistics for Windows (Version 22.0. Armonk, NY: IBM Corp.). The demographic and clinical characteristics of the participants were described using descriptive statistics.

METHODOLOGY: The study included 33 participants (16 Female, 17 Male). The mean age was 65.42(SD=9.4) and the mean of time stroke onset was 5.6(SD=4.1) years. According to TOAST classification 40% of patients had large-artery atherosclerosis and 20% had small-vessel occlusion. We found a moderate negative correlation between BBS and sway velocity when eyes open and closed (r=-0.331;p=0.069, r=-0.389; p=0.030, respectively) and a strong negative correlation between BBS and FES-I (r=-0.557; p=0.001).

Additionally there was a moderate positive correlation between FES-I and sway velocity when eyes open and closed (r=0.444; p=0.012, r=0.382; p=0.034, respectively).

The study has shown that there are some changes in COG in chronic stroke population and these changes correlated with balance parameters. We believe that improvement in balance functions will help to decrease sway velocity and also risk of falls in this patient group.