

OP 02**Gait in Post-Stroke Hemiplegic Patients is influenced by Upper Limb Functioning: A Quantitative Analysis Correlating QuickDASH with 4m Walk Test**Pushpika G.D.S.^{1#}, Samaranyake T.N.²¹*Department of Allied Health Sciences, Faculty of Medicine, University of Colombo, Sri Lanka*²*Department of Parasitology, Faculty of Medicine, University of Colombo, Sri Lanka**#Corresponding author: medbspt15329@stu.cmb.ac.lk*

Background: Stroke is a leading cause of adult disability and death. Stroke can affect the motor cortex of patient resulting hemiplegia. Post stroke hemiplegic patients may suffer from impairments in gait and impairments in upper limb functionality. As survival rate of stroke among old population increases, it is important to identify the residual physical impairments to design effective rehabilitation programme.

Objectives: To determine the relationship between degree of functionality of the affected upper limb and speed, stride length and cadence of gait in post-stroke hemiplegic patients attending Neurology Physiotherapy Unit at National Hospital of Sri Lanka.

Methods: A descriptive cross-sectional study was conducted recruiting 45 males and 35 females by convenient sampling method. The short version of disabilities of the arm, shoulder and hand questionnaire (QuickDASH) was used to assess the functionality of the affected upper limb. The range of the score is from 0-100. Zero indicates no significant disability and 100 indicates a most severe disability. A video was made while the subject was performing 4m Walk Test (4mWT). The comfortable speed, maximum speed, stride length-affected side and cadence were calculated by analyzing the video using Kinovea software version 0.8.15. Data were analyzed by descriptive statistics, independent sample t-test and Pearson correlation test in SPSS version 20.0.

Results: The mean age of the participants was 60.78 years. The mean (SD) of comfortable speed, maximum speed, stride length-affected side, cadence of gait and the QuickDASH score of the sample were 0.36 (± 0.23) ms^{-1} , 0.49 (± 0.31) ms^{-1} , 55.38 (± 36.13) m, 69.55 (± 23.58) min^{-1} and 39.34 (± 20.83), respectively. The comfortable speed ($p < 0.001$), maximum speed ($p < 0.001$) and cadence ($p = 0.001$) decrease with the increase of QuickDASH score of the subject. There was no statistically significant relationship between stride length-affected side ($p = 0.315$) and QuickDASH score. QuickDASH score and 4mWT, moderate correlations were found for: comfortable speed, maximum speed, and cadence.

Conclusions: With the decrease of upper limb functionality, efficacy of gait was affected in a post-stroke hemiplegic patient. Hence, during the rehabilitation of post-stroke hemiplegic patients, it is recommended to engage the patient early in upper limb exercises to improve functionality, which will in turn help to improve speed and cadence of walking.

Keywords: 4m walk test, Gait, QuickDASH, Stroke, Upper limb functionality