

Assessment of foot clearance using 2d motion analysis system in stroke patient

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The aim of this study to investigate the foot drag of stroke patient and normal adult using 2D motion analysis system and to use this data to predict the risk of stroke. This study was performed with 1 stroke patient and 1 normal adult. The stroke patient is female, 68 years and 145cm. She diagnosed with stroke by ischemic brain injury, over 6 months from the onset. The normal adult is female and height, age is the same as the stroke patient. 2D motion analysis using Dartfish program was conducted in order to analyze foot drag during gait. Markers were attached to lateral side of calcaneal tuberosity to track the hindfoot movement path, and attached to lateral side of the 5th distal phalanx to track the forefoot movement path. The 60Hz digital video camera was fixed on sagittal plane which was 3m away from the passage for the recording. Before recording, each subject walked 3 times to be familiarized with the direction of passage and then the gait of each subject was recorded. Analysis of the forefoot and hindfoot trajectory revealed that the forefoot clearance from floor of stroke patient was lower than that of the normal adult during swing phase. This indicates that the dorsiflexion impairment of a stroke patient interferes with the clearance of the forefoot from floor, and forefoot clearance is an important measure of abnormal walking in stroke patients. The results of this study demonstrate that the forefoot clearance using 2D motion analysis is an important parameter in analyzing the abnormal gait of stroke patients and predicting the risk of falls. This research was supported by the TIPA (Korea Technology & Information Promotion Agency for SMEs), Republic of Korea. (No. S2598270)