

Factors Related to Deteriorations of Ankle Dorsiflexion Passive Range of Motion in Nursing Home Residents – A Six-Month Longitudinal study

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Purpose: The aims of this study were to describe the changes of passive range of motion (PROM, measured in degrees) over 6-month period for ankle dorsiflexion and to identify potential prognostic factors in nursing home residents. **Methods:** Fifty-one subjects were recruited among the residents of a nursing home during the pretest, but only 17 subjects completed the 6-month posttest (mean age = 74.2 years old; 11 males, 6 females). The following data were collected from each resident: demographic characteristics; mobility status (Postural Assessment Scale for Stroke patients, PASS); physical examination (pain status, muscle tone, strength, timed up and go test, Barthel Index, etc.); duration of physical therapy interventions (min); passive joint ranges motion of bilateral ankle dorsiflexion and plantarflexion. The passive ranges of motion were measured again after 6 months. One sample t test was used to determine the effects of time on the changes of ankle PROMs. Binary logistic regression models were used to analyze the prognostic factors for ankle dorsiflexion deterioration. **Results:** Deterioration was evident in 12 of 34 (35.3%) PROM of ankle dorsiflexion. Mean of the first-time measure of PROM of ankle dorsiflexion was -9.4 degrees, and Mean of the second-time measure of PROM of ankle dorsiflexion was -13.7 degrees. One sample t-test revealed that the PROM of the ankle dorsiflexion decreased significantly over 6 months ($t=2.535, p<0.05$). Longer length of stay and onset of diseases, worse mobility status (lesser PASS scores and both L/E weight bearing ability), weaker ankle dorsiflexor and higher muscle tone over ankle plantarflexor were correlated to contracture of ankle PROMs. Binary logistic regression model revealed that the occurrence of ankle dorsiflexion range deterioration is higher if abnormal muscle tone over ankle plantarflexor was detected (odds ratio=6.329; 95%CI 1.202 to 33.333). **Conclusions:** Nursing home residents demonstrated significant deteriorations in ankle dorsiflexion in 6 months duration. Higher muscle tone over ankle plantarflexor was the main prognostic factors for ankle joint range deteriorations. Thus we should screen and detect the residents with the prognostic factor and provide appropriate intervention early to prevent the occurrence of contracture in nursing home residents. (FJPT 2007;32(4):183-192)

Key Words: Nursing home residents, Ankle dorsiflexion passive range of motion, Prognostic factors

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