노인재활

발표일시 및 장소: 10 월 19 일(토) 14:20-14:30 Room B(5F)

OP2-4-3

Trunk Fat Mass Correlates with Balance and Physical Performance

Seung Ah Lee[1†], Hee Sang Kim[1], Jong Ha Lee[1], Dong Hwan Yun[1], Seung Don Yoo[1], Dong Hwan Kim[1], Jin mann Chon[1], Yun Soo Soh[1], Yong Kim[1], Young Rok Han[1], Myung Chul Yoo[1], Chang Won Won[2], Jae Hoon Kim[1*]

Kyung Hee University Medical Center, Department of Rehabilitation Medicine[1], Kyung Hee University Medical Center, Department of Family Medicine[2]

Objective

The aging process is characterized by gradual declines in balance and physical performance. This is caused by various factors such as a decrease in muscle mass and an increase in fat mass. Waist circumference as a tool of abdominal obesity correlates with balance function. Recent studies have also investigated the relationship between trunk muscle and balance or physical performance using CT or MRI. The purpose of this study was to investigate whether trunk fat mass measured by dual-energy X-ray absorptiometry (DXA) correlates with balance and physical performance.

Method

This study utilized a pre-existing database from two years of the baseline data of Korean Frailty and Aging Cohort study (KFACS) of 3014 subjects participants. The trunk lean mass and fat mass were measured in 471 community-dwelling elderly subjects DXA. Trunk fat mass index (tFMI) was established using the following standard equation: Trunk fat mass (Kg) / Height2 (m2). The clinical balance tests were performed using the timed up and go test (TUG), total balance score in short physical performance battery (SPPB). We performed SPPB and measuring of both hand grip power to evaluate physical performance. Also, We evaluated whether tFMI correlated to the independence of daily living using activities of daily living (ADL), instrumental activities of daily living (IADL), SARC-F questionaries. Participants were stratified by the median value of tFMI (median value is 4.1). And the physical performance tests (TUG time, the time and scores in components of SPPB), balance and hand grip (Kg) were compared in low (tFMI ≤ 4.1) and high group (tFMI > 4.1). The statistical significance was determined at a p value of < 0.05.

Results

The tFMI was a positive correlation with mean 4 meters gait speed (sec), repeat chair stand time (sec) in SPPB, TUG (sec), SARC-F and negative correlation with both hand grip, IADL, total balance test score in SPPB, total SPPB score, age. Results of the binary logistic regression analysis to identify factors affecting balance and physical performance in low tFMI group and high tFMI group, the results of repeat chair stand time in SPPB (sec) (OR=1.99, CI:1.19-3.33), mean 4 meters gait speed (sec) (OR=1.48, CI:1.03-2.12), SARC-F

(OR=1.26 ,CI:1.00-1.58), age (OR=0.89, CI:0.84-0.95) and total balance test score in SPPB (OR=0.38, CI:0.19-0.74) were significant correlated with tFMI. The results of generalized linear model analysis to assess the factors affecting balance and physical performance. tFMI had a significant correlation with repeat chair stand time in SPPB (sec) (Beta estimate (B): 0.251), TUG time (sec) (B:0.25), 4 meters gait speed (sec) (B:0.055), total balance score in SPPB (B:-0.035).

Conclusion

In our study, high tFMI using DXA was positive correlated with repeated chair stand time, TUG, 4 meters gait speed and negative correlated with total balance score. High tFMI showed a significant relationship with balance and physical performance.