

통증 및 근골격재활

발표일시 및 장소 : 10 월 18 일(금) 13:55-14:05 Room A(5F)

OP1-1-5

Usefulness of Psoas Muscle CSA in evaluating physical performance in patients with liver cirrhosis

Bo Seong Jang^{1*}, Jae Hyun Lee¹, Young Joo Sim¹, Ghi Chan Kim¹, Ho Joong Jeong^{1†}

Kosin University College of medicine, Department of physical medicine and rehabilitation¹

Objective

In patients with liver cirrhosis, protein depletion and reduced muscle function occur due to inadequate dietary intake, metabolic disturbances and malabsorption. Skeletal muscle mass reduction has been reported to be independent prognostic factor with Child-Turcotte-Pugh(CTP) score in patients with liver cirrhosis. However, previous studies had variable baseline characteristics and focused on muscularity assessment such as muscle mass, strength and quality. The purpose of this study was to investigate physical performance of ambulatory patients with liver cirrhosis under 65 years of age and to investigate the correlation between physical performance and muscular characteristics.

Method

In this study, we included patients who admitted in department of hepatology and were diagnosed with liver cirrhosis between September 2018 and May 2019. Patients who were unable to walk and older than 65 years were excluded. Total skeletal muscle mass was obtained by bioimpedance analysis(BIA), and skeletal muscle index(SMI) was obtained by dividing total skeletal muscle by square of height. Dominant hand grip strength was measured twice at 5 minute intervals using dynamometer and a higher value was used as grip strength. Physical performance was evaluated using short physical performance battery(SPPB). Psoas muscle cross-sectional area(PMCSA) was measured at distal end plate level of L4 vertebral body and measured using Image J(Fiji, USA) in axial view of CT scan.

Result

A total of 53 patients were included in this study. The mean age was 58.0 ± 9.0 years and 39 patients were men. CTP score A,B and C were 22, 11 and 20, respectively. There was no statistically significant difference in mean values of SMI, grip strength, PMCSA and SPPB according to CTP score in Kruskal-wallis test. Mean SPPB score of the subjects was 9.11 ± 2.10 and 26 patients (49%) had reduced SPPB less than 10 points. Pearson correlation showed statistically significant correlation between the SPPB score and PMCSA ($r = 0.363$, $p < 0.01$) (Figure 1).

Conclusion

In patients with liver cirrhosis under 65 years old, there was a decrease of physical performance, and SPPB score correlated with PMCSA. This may be helpful in predicting prognosis of patients with liver cirrhosis using SPPB to investigate decrease of physical performance. In addition, we can

predict decrease of physical performance by examining PMCSA, which can be measured easily by abdominal CT which is essential for patients with liver cirrhosis.

Table 1. Demographic and clinical data

Variables	Value
Age	58.0±9.0
Sex	
Male	39(73%)
Female	14(27%)
SPPB score	
≥10	37(70%)
<10	16(30%)
Grip strength(kg)	25.8±9.2
SMI(kg/m²)	11.41±1.80
Psoas muscle area(mm²)	843±286

Values are presented as mean±standard deviation or number(%)

SPPB : Short physical performance battery, summation of scores on three tests ; Balance, Gait speed and Chair stand. Each test is weighted equally with scores between 0 and 4. SMI : Skeletal muscle index

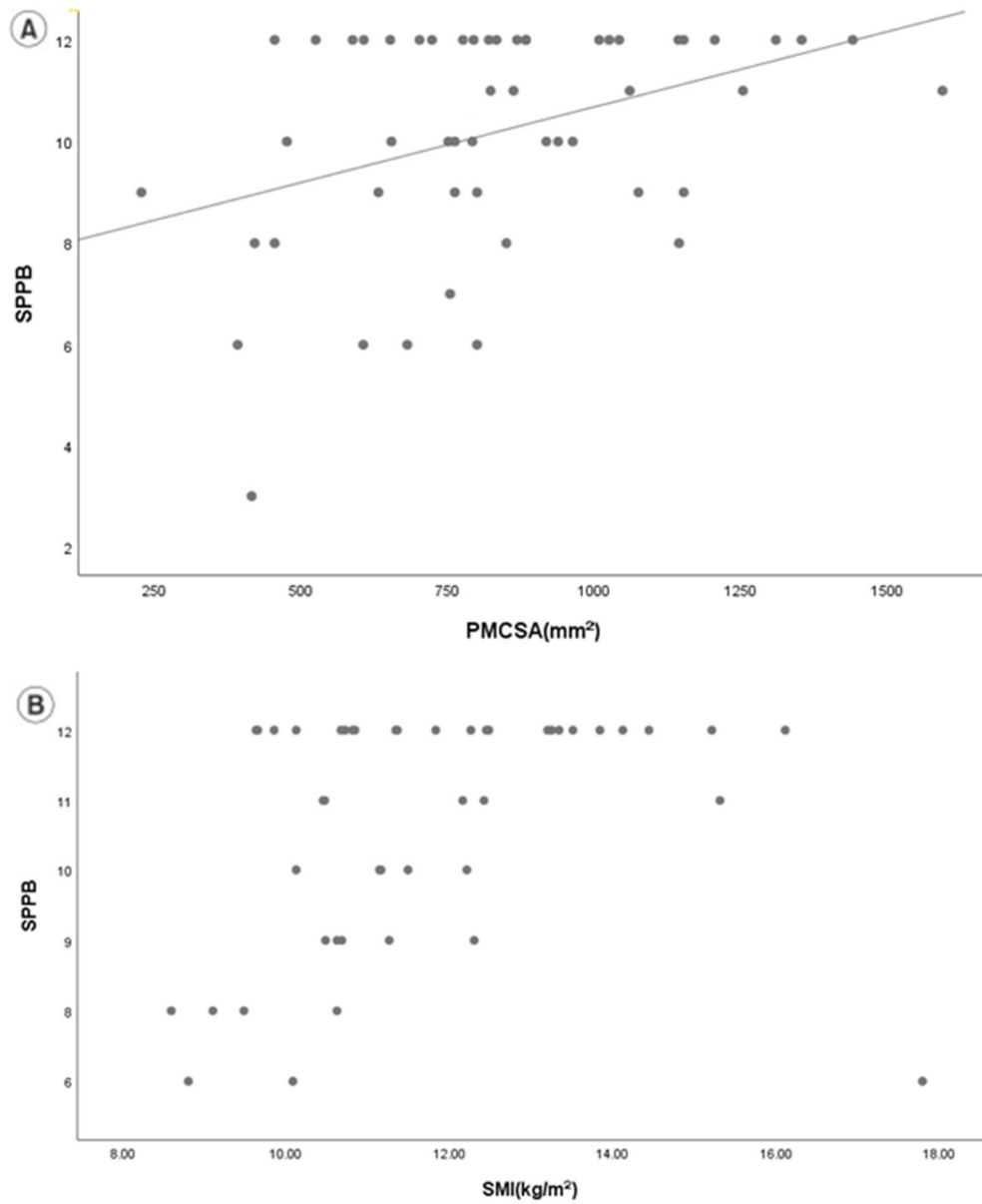


Figure 1. Pearson Scatter plots for study results of short physical performance battery (SPPB). (A) Psoas muscle cross-sectional area (PMCSA) ($r=0.363$, $p<0.01$), (B) Skeletal muscle index (SMI) ($r=0.248$, $p>0.05$)