

Han Tae Kim^{1,2}, Soo Jeong Jo^{1,2}, Hyun-Ho Kong^{1,2}¹Department of Rehabilitation Medicine, Chungbuk National University Hospital²Chungbuk National University College of Medicine, Department of Rehabilitation

Introduction

- Lung resection can have negative effects on **exercise capacity**
- The **cardiopulmonary exercise test (CPET)** and **six-minute walk test (6MinWT)**
 - commonly used to assess exercise capacity but can be **difficult to perform**
- **10-meter walking test (10mWT)**
 - **simple** test that measures gait speed
- the purpose of this study
 - analyze the **correlation** between the result of 10mWT and 6MinWT or CPET, in patients after lung resection.

Method

Study design

- Single center, cross-sectional study

Participants

- Lung cancer patients (n=50)

Exercise capacity

- 6-minute walk test (6MinWT)
 - ; Divide by cutoff value of 500m
- cardiopulmonary exercise test (CPET) with gas analysis
 - ; Divide by cutoff value of 20ml/kg/min

Gait speed

- 10-meter walk test (10mWT)

Results

Table 1. Comparison between 10mWT and exercise tests according to exercise capacity

Correlation coefficient	6MinWT (distance, meter)		CPET (VO ₂ max, ml/kg/min)	
	<500 (N=22)	≥500 (N=28)	<20 (N=18)	≥20 (N=32)
	r = 0.70 p < 0.001		r = 0.47 p < 0.01	
	r _s = 0.70 p < 0.001	r _s = 0.20 p = 0.32	r _s = 0.54 p < 0.05	r = 0.22 p = 0.22
Walking speed				
10mWT (m/s)	1.16±0.19	1.48±0.23	1.22±0.26	1.41±0.24
6MinWT (m/s)	1.15±0.19 ^{a)}	1.61±0.11 [*]	1.21±0.27 ^{b)}	1.51±0.21 [*]

r = Pearson's correlation coefficient; r_s = Spearman's rank correlation coefficient

The significant difference between 10mWT and 6MinWT: a) p = 0.36; b) p = 0.74; * p < 0.05.

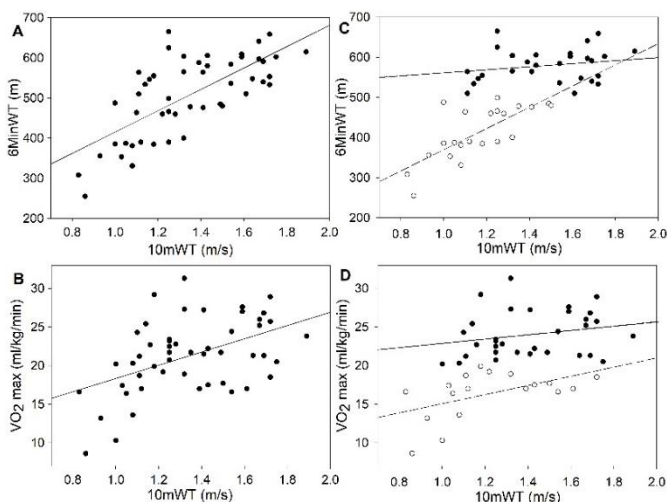


Figure 1. Correlation between result of 10mWT(m/s) and 6MinWT(m)(A), 10mWT and CPET(ml/kg/min)(B), 10mWT and 6MinWT<500(Black dot in C), 10mWT and 6MinWT≥500(White dot in C), 10mWT and CPET<20(White dot in D), and 10mWT and CPET≥20(Black dot in D)

• Significant correlation between result of

- 10mWT and 6MinWT (**r=0.704, P<0.001**)

; strong correlation

- 10mWT and CPET (**r=0.472, P<0.01**)

; moderate correlation

• Patients divided based on exercise capacity

- 10mWT correlate with

- 6MinWT<500m group ; **r_s=0.70 p<0.001**

- CPET<20ml/kg/min group ; **r=0.54 p<0.05**

Conclusion

- 10mWT is a good screening tool for evaluating exercise capacity after surgical resection of lung cancer, especially in patients with low exercise capacity.
- 10mWT Can be useful in out-patient setting where it is difficult to perform 6MinWT or CPET.