P-33

Pilot study on prehabilitation for rectal cancer patients undergoing preoperative chemoradiation

Mi-Jeong Yoon[1], Nina Yoo[2], Hanee Rim[1], Yeun Jie Yoo[1]

[1] Department of Rehabilitation Medicine, St. Vincent's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

[2] Department of Surgery, St. Vincent's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

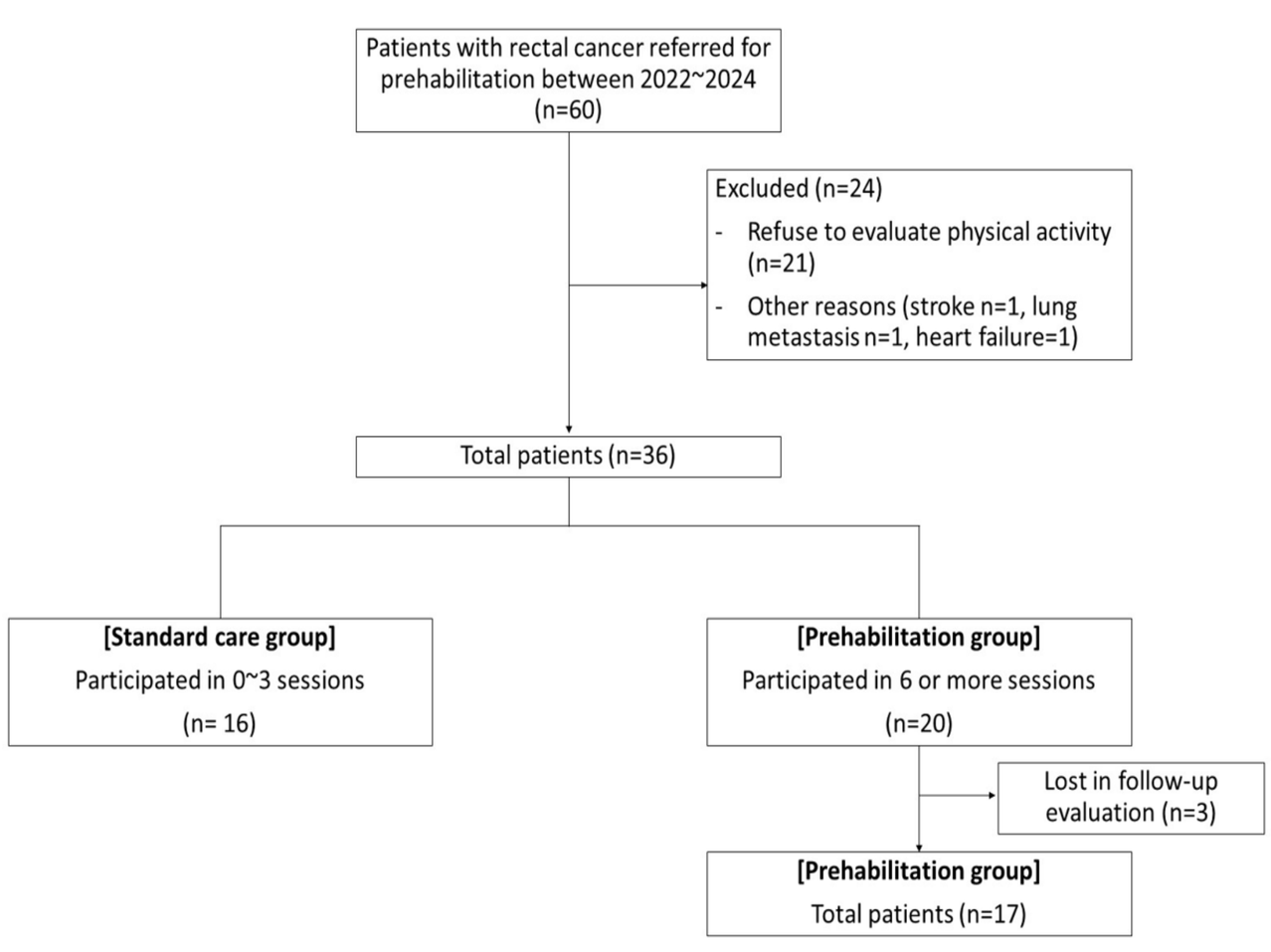
Background

Preoperative rehabilitation (prehabilitation) programs may improve outcomes in rectal cancer patients undergoing radical resection after neoadjuvant chemoradiotherapy, yet evidence remains limited. This study aims to evaluate the effectiveness of a prehabilitation program in reducing postoperative pulmonary complications and maintaining physical function in rectal cancer patients.

Methods

In this study of 60 rectal cancer patients (ages 20-80), participants were categorized into standard care (0-3 sessions of exercise) or prehabilitation (≥6 sessions of exercise) groups. The 12-week prehabilitation program included twice-weekly supervised exercise sessions combining aerobic and resistance training. Physical performance, nutritional status, and postoperative outcomes were assessed at multiple time points from pre-chemoradiotherapy to 3 months post-surgery.

Figure 1. Flow chart of colon cancer patients participating in the preoperative rehabilitation program



Results

Of 33 included patients, postoperative complications and hospital length of stay were comparable between groups. However, the prehabilitation group (n=17) demonstrated significantly fewer incidences of lower lobe atelectasis on postoperative CT scans compared to standard care (n=16). Additionally, while the standard care group showed declines in shuttle walk distance and grip strength, the prehabilitation group maintained their baseline physical performance levels.

Table 1. Difference in the incidence of postoperative atelectasis between the standard care group and the prehabilitation group

		Standard care group (N= 16)	Prehabilitation group (N=17)	Between groups (p-value)
Presence of atelectasis at POD 7	No	7 (66.7)	14 (33.3)	0.021*
	Yes	9 (25.0)	3 (75.0)	

Values are presented as number of patients (%)

Table 2. Comparison of preoperative and postoperative physical performance in the prehabilitation and standard care group

	Standard care group (N=16)					Prehabilitation group (N=17)					Between groups
	Baseline	Pre-surgery	p-value[a]	Post-surgery	p-value[b]	Baseline	Pre-surgery	p-value[a]	Post-surgery	p-value[b]	p-value
Shuttle walk test (m)	335.8 (150.9)	318.6 (130.7)	0.516	257.3 (127.9)	0.002*	391.9 (109.6)	457.3 (89.0)	0.011*	331.9 (141.9)	0.051	0.237
Hand grip strength (Kg)	37.6 (13.5)	31.2 (11.9)	0.063	30.5 (11.6)	0.001*	30.4 (9.0)	31.0 (9.5)	0.463	27.3 (9.7)	0.098	0.058
Gait speed (m/s)	1.31 (0.33)	1.26 (0.41)	0.652	1.09 (0.37)	0.084	1.44 (0.56)	1.85 (0.72)	0.070	1.28 (0.36)	0.533	0.117

Values are presented as mean (standard deviation)
a= between baseline and pre-surgery
b= between baseline and post-surgery
*p<0.05

Conclusion

This study suggests that pre-rehabilitation may help reduce postoperative pulmonary complications and preserve physical function following rectal cancer surgery. Further research is needed to enhance adherence to exercise programs