Association among physical activity, core stability, and low anterior resection syndrome in patients with rectal cancer

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Background and Significance

- Rectal cancer treatments often result in bowel dysfunction known as Low Anterior Resection Syndrome (LARS), affecting 60%-90% of patients, such as fecal incontinence, urgency, and increased stool frequency[1].
- Physical activity and core stability training have been shown to enhance pelvic floor function and neuromuscular control, which may potentially mitigate LARS symptoms[2,3].
- However, the associations among physical activity, core stability, and LARS in patients with rectal cancer remain unexplored.

Purpose

The aim of this study was to examine the association among physical activity, core stability, and low anterior resection syndrome in patients with rectal cancer.

Methods

- A longitudinal study was conducted at a surgical clinic in a medical center in northern Taiwan.
- Patients newly diagnosed with rectal cancer were recruited.
- A structured questionnaire collected demographic and clinical data, exercise behaviors, and physical activity levels.
- Core stability was assessed using the Single Leg Stance Test.
- Data collection occurred at three time points: pre-treatment (T0), 1 month (T1), and 2 months (T2) post-treatment.
- Descriptive statistics and generalized estimating equations (GEE) were employed to analyze changes in physical activity, core stability, and their associations with LARS.

Results and Conclusion

- A total of 74 participants were enrolled. The average age of participants was 61.4 years (SD=10.3) and had good functional status. Most of the participants were men (63.3%) and diagnosed with stage III (68.4%). (Table 1)
- Figure 1 presents the trends in mean LARS, anxiety scores, METs of physical activity, and the results of the Single Leg Stance Test over time. LARS scores increased from T0 (mean = 11.5) to T1 (mean = 17.5), then slightly declined at T2 (mean = 16).
- The GEE analysis revealed that higher levels of anxiety (β=1.914; p=0.012) and longer single leg stance duration (β=-0.799; p=0.003) were significantly associated with lower LARS severity (Table 3).
- This study underscores the potential of interventions targeting anxiety and core stability in mitigating LARS. Health care providers are encouraged to assess core stability in patients before treatment to inform tailored rehabilitation strategies.

References

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Table 1. Demographic and Clinical Characteristics (N=74)

Characteristics	M	SD	Characteristics	n	%
Age	61.4	10.3	**Regular exercise**		
Years of education	13.0	3.8	Yes	43	58.1
KPS[a]	91.1	3.1	No	31	41.9
BMI[b]	24.0	3.7	**Stage**		
Characteristics	n	%	0-I	10	13.5
Gender			II	9	12.1
Male	50	67.6	III	39	52.7
Female	24	32.3	IV	16	21.7
Marital status			**Chronic disease**		
Married	58	78.4	Yes	40	54.1
Single/ Divorce/ Widower	16	21.6	No	34	45.9

Note: [a]Measured by the Karnofsky Performance Scale. [b]BMI: Body Mass Index.

Table 2. The Associated Factors of LARS[a] in the GEE[b] Analysis (N=74)

Variable	Coefficient	Std. Err.	Wald chi-square	p
Age	.310	.3348	.854	.344
Stage (stage 0-II=0; stage III-IV=1)	-5.412	8.1006	.446	.504
Regular exercise behavior before treatment	-2.172	7.0179	.096	.757
Anxiety[c]	1.914	.7637	5.284	**.012**
IPAQ[d]	-.001	.0015	.490	.484
The 30-second Single Leg Stance Test	-.799	.2674	8.928	**.003**
TIME	-2.583	2.6691	.937	.333
Intercept	67.162	29.5211	5.176	**.023**

Note: [a]Measured by the Low Anterior Resection Syndrome Score with scores ranging from 0 to 42, and higher scores indicate a higher level of LARS. [b]GEE, generalized estimating equation, was based on unstructured working correlation matrix. [c]Measured by the Generalized Anxiety Disorder 7 with scores ranging from 0 to 21, and higher scores indicate a higher level of anxiety. [d]Measured by the International Physical Activity Questionnaire (IPAQ).

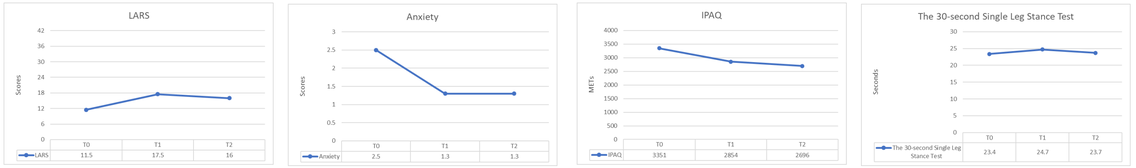

Figure 1. Changes of Mean Scores of LARS, Anxiety, Physical Activity, and Core Stability (N=74)

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