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Effect of rehabilitation program in patient with bladder cancer: A case series

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Introduction

- Previous study suggested that rehabilitation program includes aerobic and resistance exercise showed inverse association with cancer risk.
- This study aims to examine the effects of rehabilitation in patients with bladder cancer who has recent history of radial cystectomy with orthotopic ileal neobladder or ileal conduit urinary diversion (ICUD).

Case Presentation

- Five patients were retrospectively analyzed in this study. From January to February 2024, the patients' records with inhospital rehabilitation program after radial cystectomy with orthotopic ileal neobladder or ICUD were collected.
- Table 1 showed patients' demographic factors and clinical findings.

Table 1. Demographic factors and clinical findings

Patient No.	Sex (M/F)	Age	Operation	TNM staging	Hospital day	Rehabilitation day
1	M	78	Neobladder	T3b	28	25
2	F	74	ICUD	T2N2M1	47	19
3	M	59	ICUD	T4	37	4
4	M	82	ICUD	T3b	27	11
5	M	86	ICUD	T4N2	47	6

- Evaluations were scheduled before and after rehabilitation.
  - Examinations included manual muscle test (MMT), berg balance scale (BBS), 10m walk test (10mwt), grip strength test and skeletal muscle index (SMI).
  - Also, patients' functional capacity was recorded.
- In MMT, all patients improved their upper and lower extremity strength grade by one level after aerobic and resistance exercises. Upper extremities grade was increased from 3-4 to 4-5, and lower extremities grade was increased from 2-4 to 3-5.
- Other examinations were also performed, however, since less than a month has passed, these tests have not yet been followed up.
- In BBS, patient No. 2, 3, 4 and 5 who were able to stand were tested and presented scores were 22, 50, 54, and 5, respectively.
- In 10mwt, patient No. 3 showed 8.12 sec and No. 4 appeared 13.37 sec.
- In grip strength test,
  - patient No. 1 showed 14.6 kg on right side and 14.4 kg on left side.
  - Patient No. 2 presented 14 kg and 14.4 kg.
  - patient No. 3 appeared 29.1 kg and 21.1 kg
  - patient No. 4 suggested 26.2 kg and 28.3 kg
  - patient No. 5 showed 17.9 kg and 16.6 kg
- In SMI, patient No. 1 showed 8.1 kg/m2 and No. 2 suggested 6.9 kg/m2.
- Functional improvement was showed in all patients.
  - Patient No.1 showed sit to stand with moderate assist and standing balance static F, dynamic P before rehabilitation, and the function was improved to walker gait 2-3m after rehabilitation.
  - Patient No. 2 described gait with walker, moderate assist <10m before rehabilitation, and the function was improved to gait with minimal assist <50m after rehabilitation.
  - Patient No. 3 appeared independent gait >50m before rehabilitation, and the endurance was increased to >100m and gained ability for stair gait after rehabilitation.
  - Patient No.4 appeared independent gait >50m before rehabilitation, and the endurance was increased to >100m after rehabilitation.
  - Patient No. 5 presented sit to stand with minimal assist and standing balance static F, dynamic F before rehabilitation, and independent sit to stand after rehabilitation.

Discussion

- Descriptive interpretation suggested clinical improvement of patients' muscle power and functional capacity, and it was expected improvements in other examination parameters.
- Follow up evaluations further study is needed for clarifying the effect of exercise in bladder cancer patients with radical cystectomy and urinary diversion.

Keywords: Exercise, Physical Activity, Rehabilitation, Urinary Bladder Neoplasms, Urinary Diversion