

Conflict of disclosure: I have nothing to disclose.

Introduction:

Under the Japanese health insurance system, rehabilitation for cancer patients in hospital has been covered by insurance since 2010, but not for outpatients.

However, there has been a shift towards the outpatient management of chemotherapy in Japan in recent years.

Our hospital opened an outpatient cancer rehabilitation clinic and a Conditioning Room(satellite rehabilitation room) in the Outpatient Cancer Treatment Center in 2019 to provide support for physical function and ADLs for outpatients.

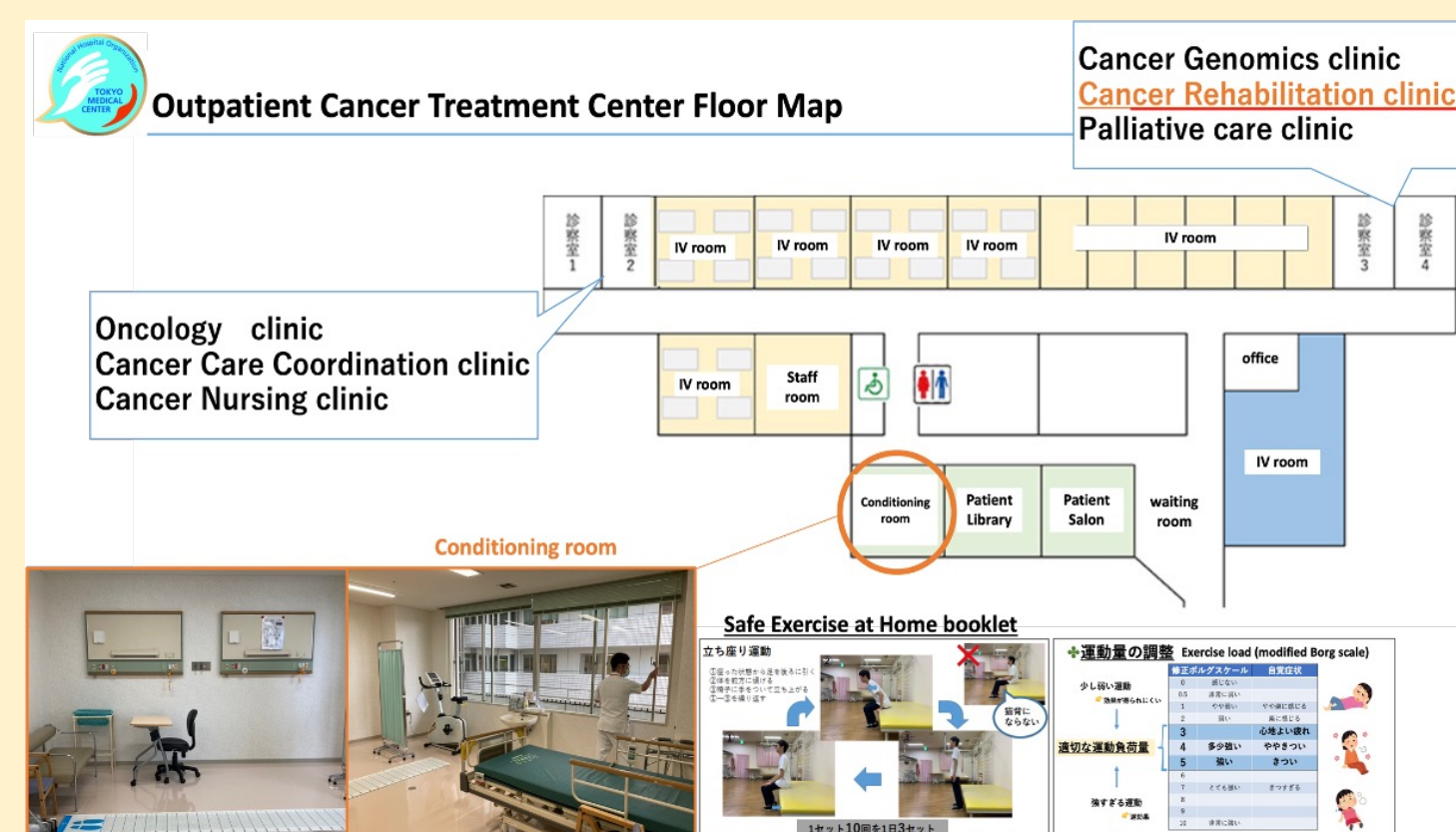
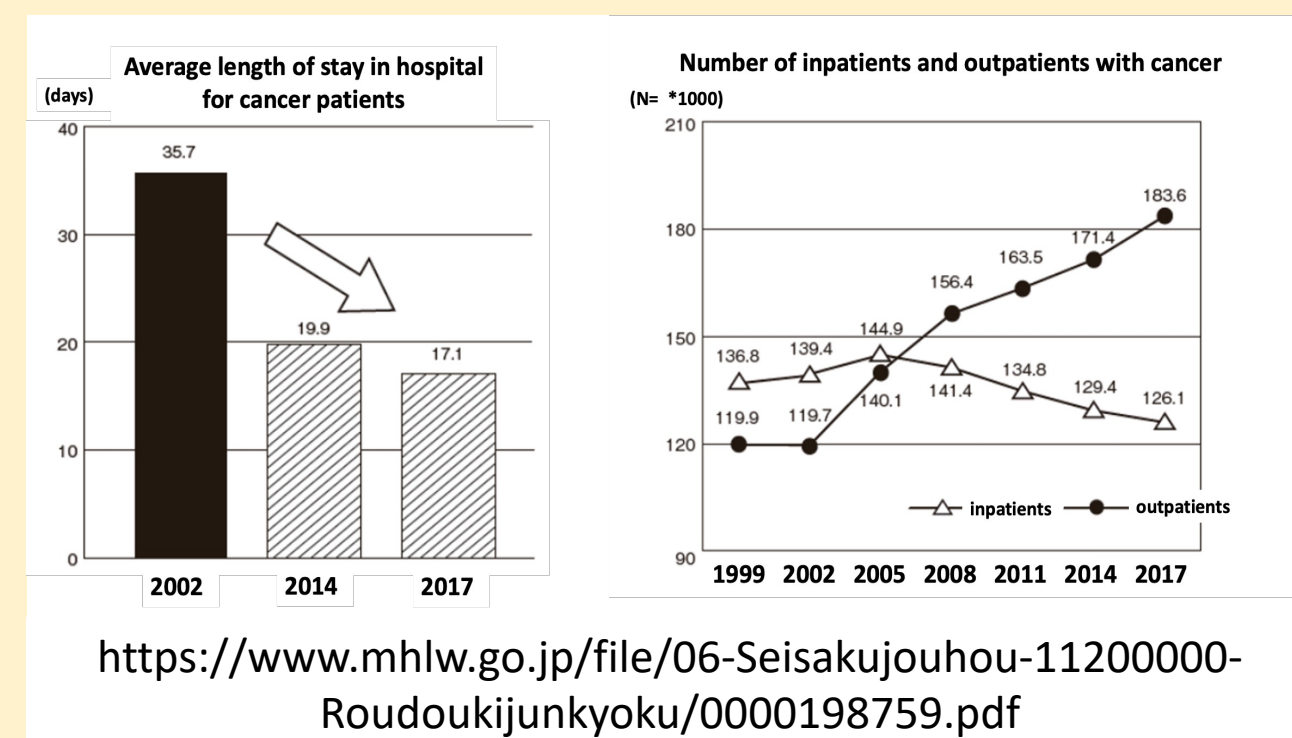
In 2021, we also started home-based exercise for patients who suffered from chemotherapy-induced peripheral neuropathy (CIPN) during outpatient treatment.

The aim of this study was to evaluate the tolerability of home-based exercise for outpatients with CIPN.

Methods:

A prospective survey was conducted between October 2022 and February 2024 on outpatients undergoing a 12-week rehabilitation program for CIPN.

The exercise consisted of two parts: home-based self-exercise and supervised exercise in an outpatient setting (once every four weeks). The primary outcome was the completion rate of the 12-week program. The secondary outcome was physical function before and after the intervention.



Results:

Participants characteristics (N=25)

Average age, years	65 ± 9.3
Male	n=8 (32.0%)
Female	n=17 (68.0%)
Cancer type	
Breast	n=8 (32.0%)
Gynecological	n=7 (28.0%)
Colon	n=3 (12.0%)
Esophageal	n=2 (8.0%)
Urological	n=2 (8.0%)
others	n=3 (12.0%)
Stage of illness	
stage1	n=2 (8.0%)
stage2	n=6 (24.0%)
stage3	n=6 (24.0%)
stage4	n=10 (40.0%)
recurrence	n=1 (4.0%)
Semmes-Weinstein monofilament set (finger)	
2.81 (normal)	n=1 (4.0%)
3.61 (diminished light touch)	n=9 (36.0%)
4.31 (diminished protective sensation)	n=12 (48.0%)
4.56 (loss of protective sensation)	n=2 (8.0%)
6.65 (residual deep touch)	n=1 (4.0%)
CTCAE ver. 4.0 ^a -JCOG	Grade2 (100%)
FACT/GOG-Ntx ^b Total score (range;0-152)	91.5 ± 10.9
FACT/GOG-Ntx TOI ^c (range;0-80)	59.0 ± 9.6
cFAS ^d Total score (range;0-102)	78.3 ± 11.0
Barthel Index (range;0-100)	98.8 ± 2.6

CTCAE ver. 4.0^a: Common Terminology Criteria for Adverse Events version 4.0.
 FACT/GOG-Ntx^b: Functional Assessment of Cancer Therapy/Gynecologic Oncology Group-Neurotoxicity, TOI^c: Trial Outcome Index, cFAS^d: cancer Functional Assessment Set

Association between physical function and QOL

	cFAS total score	P-value
FACT-Gog/Ntx total score	r=0.48	0.015*
FACT-Gog/Ntx TOI	r=0.51	0.009**

r = Pearson correlation coefficient, *P<0.05, **P<0.01

Moderate correlations were found between physical function and QOL of patients with CIPN.

Tolerability of home-based exercise

- The program completion rate was 92.0%, with two participants dropping out (Changed to inpatient treatment). Excluding the two dropouts, the supervised exercise participation rate was 96.9%.
- No adverse events were reported during the 12-week rehabilitation program.

Results from Baseline to 12-week assessment

Scale	Mean score (SD)		change Mean (SD)	p-value
	Baseline	12week		
FACT/GOG-Ntx Total score (n=18)	92.30 (9.85)	89.73 (16.31)	-2.57 (12.96)	NS
FACT/GOG-Ntx TOI (n=18)	59.02 (9.46)	57.28 (13.38)	-1.74 (9.15)	NS
cFAS Total score (n=25)	80.36 (11.60)	82.82 (21.84)	2.46 (17.16)	NS
cFAS Items (n=25)				
Sit up	4.90 (0.30)	4.85 (0.36)	-0.05 (0.38)	NS
Stand up	4.71 (0.46)	4.80 (0.51)	0.09 (0.54)	NS
Transfers	4.71 (0.46)	4.86 (0.36)	0.15 (0.48)	NS
50-m walk	4.76 (0.44)	4.76 (0.54)	0.0 (0.45)	NS
Stairs ascending and descending one floor	4.14 (0.65)	4.48 (0.68)	0.34 (0.58)	0.016*
Rt. Grip strength	2.90 (1.34)	2.71 (1.14)	-0.19 (0.73)	NS
Lt. Grip strength	2.71 (1.52)	2.90 (1.30)	0.19 (0.93)	NS
Rt. Iliopsoas MMT ^a	4.00(0.89)	4.43 (0.68)	0.43 (0.93)	0.047*
Lt. Iliopsoas MMT ^a	3.95 (0.97)	4.43(0.68)	0.48 (1.12)	0.066
Rt. Quadriceps MMT ^a	4.62 (0.59)	4.86 (0.36)	0.24 (0.62)	0.021*
Lt. Quadriceps MMT ^a	4.57 (0.93)	4.86 (0.36)	0.29 (0.96)	NS
Rt. Tibialis Anterior MMT ^a	4.48 (0.98)	4.67 (0.73)	0.19 (0.75)	NS
Lt. Tibialis Anterior MMT ^a	4.71 (0.64)	4.71 (0.56)	0.00 (0.32)	NS
Abdominal MMT ^b	2.10 (0.94)	2.33 (0.80)	0.23 (0.83)	NS
Rt. One foot standing with eyes open	3.10 (2.00)	3.62 (1.94)	0.52 (2.16)	NS
Lt. One foot standing with eyes open	3.19 (1.94)	3.76 (1.84)	0.57 (1.91)	NS
Body sway with feet together, eyes closed for one minute	2.10 (1.14)	2.62 (1.07)	0.52 (1.33)	NS
Rt. Shoulder abduction passive ROM ^c	2.38 (0.97)	2.90 (0.30)	0.52 (0.83)	0.008**
Lt. Shoulder abduction passive ROM ^c	2.38 (1.02)	2.76 (0.54)	0.38 (0.81)	0.029*
Rt. Ankle dorsiflexion passive ROM ^c	2.14 (0.65)	2.43 (0.81)	0.29 (0.56)	0.030*
Lt. Ankle dorsiflexion passive ROM ^c	2.29 (0.56)	2.43(0.81)	0.14 (0.65)	NS
Upper Extremity sensory function	1.62 (0.50)	1.76 (0.44)	0.14 (0.36)	NS
Lower Extremity sensory function	1.52 (0.51)	1.71 (0.46)	0.19 (0.40)	0.042*
The area where he/she is doing daily activity	2.90 (0.30)	2.86 (0.36)	-0.04 (0.38)	NS

MMT^a: Manual Muscle Test, MMT^b: Stroke Impairment Assessment Set abdominal muscle strength, ROM^c: Range of Motion. *p<0.05, **p<0.01

Conclusion:

The results of this study show that home-based exercise is well tolerated. Home-based self-exercise was shown to improve physical function in outpatients with CIPN, particularly lower limb muscle strength and lower limb sensation and shoulder joint ROM. This results support earlier findings stating a positive influence of exercise on CIPN¹⁾⁻⁴⁾.

References

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