Disability–free survival in patients with terminal cancer in palliative care unit

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Background/ Study aim

✔The activities of daily living (ADL) are significantly correlated with cancer patients' quality of life (QOL). (Akazawa 2009). ADLs are a factor in cancer patients' discharge from palliative care units (PCU) (Aso 2022).

✔Recently, the outcome of Disability-Free Survival (DFS) has been the focus topic. The prospect of ADLs in the PCU can assist patients in discharge planning.

Study aim

"To determine DFS in patients with terminal cancer admitted to a PCU. "

Methods

Design: Retrospective cohort study (date: August 1, 2018, and September 30, 2022)

Participants: Inclusion criteria

1. Cancer patients who were discharged in the PCU.
2. ≧18 years old.
3. more than one ADL assessment.
4. Functional Independence Measure (FIM) eating, toileting, and walking items scores of ≧6 on admission.
     (Evaluated every 1-2 weeks by trained therapists or nurses)

Data Collection: age, gender, diagnosis, metastasis presence, modified Glasgow Prognostic Score(mGPS), Neutrophil-to-Lymphocyte Ratio (NLR), and Prognostic Nutritional Index (PNI).
  -mGPS: CRP<10mg/L=0; CRP>10mg/L=1, CRP>10mg/L and albumin<35g/L=2.
  -NLR=absolute neutrophil count / absolute lymphocyte count
  -PNI= 10 × albumin g/dL + 0.5% x total lymphocyte count.

Ethics: Study conducted per the Declaration of Helsinki.
Approval was obtained from the Tsurumaki-Onsen Hospital Clinical Research Ethics Review Subcommittee (approval number 515).

Primary outcome: DFS was defined as the duration of independence(score ≧6) in FIM eating, toileting, and walking items.

Statistical Analysis:
DFS was calculated using a competing risk model.
Analysis was performed using EZR on the R commander ver. 1.55.
The significance threshold was set at 5%.

Results

Demographics data   *Values in the table are **means (SD)** or **number of subjects**.

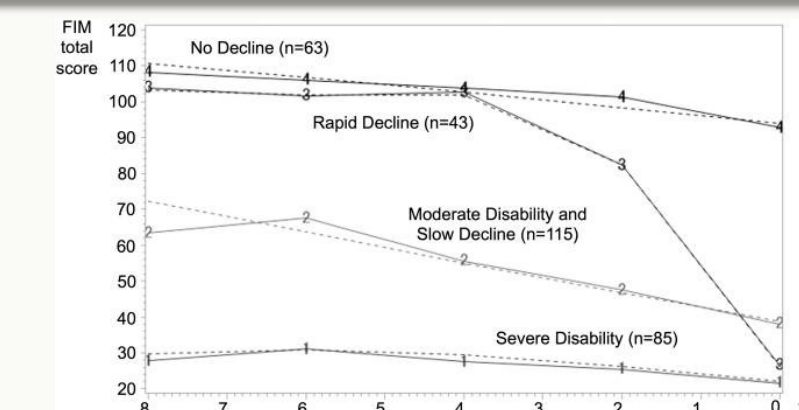|	Eating n=167	Toileting n=70	Walking n=68		Eating n=167	Toileting n=70	Walking n=68
Age: year	74.6(12.4)	71.5(10.0)	71.6(10.2)	FIM-m: point	56.7(20.4)	75.3(8.9)	74.3(10.0)
Female/Male: n	99/68	40/30	42/26	FIM-c: point	29.4(5.9)	32.5(4.3)	32.7(4.1)
Major Cancer site: n				Alb: g/dL	3.1(0.7)	3.4(0.8)	3.4(0.8)
lung	31	17	17	CRP: mg/dL	4.5(5.7)	3.8(5.5)	4.3(0.9)
breast	26	14	11	mGPS	1.2(0.9)	0.9(0.9)	0.9(0.9)
pancreas	20	7	8	PNI	35.9(7.5)	39.0(7.9)	38.8(8.1)
Brain metastasis: n	17	1	1	NLR	8.0(7.6)	7.7(7.9)	7.8(8.2)
Bone metastasis: n	47	17	19				
Lung metastasis: n	48	16	16				
Liver metastasis: n	57	26	28				

FIM: Functional Independence Measure, **FIM-m**: FIM motor items, **FIM-c**: FIM cognitive items, **Alb**: Albmin, **CRP**: C-reactive Protein, **mGPS**: modified Glasgow Prognostic Score, **PNI**: Prognostic Nutritional Index, **NLR**: Neutrophil-to-Lymphocyte Ratio.

DFS (95% confidence interval) of each ADL items

Competing events
— Disability-Free Survival
--- Death

Eating
4 weeks
(3-5 weeks)

Number at risk
167   26   10   4   3   1   1

Toileting
5 weeks
(3-8 weeks)

70   9   1   1

Walking
5 weeks
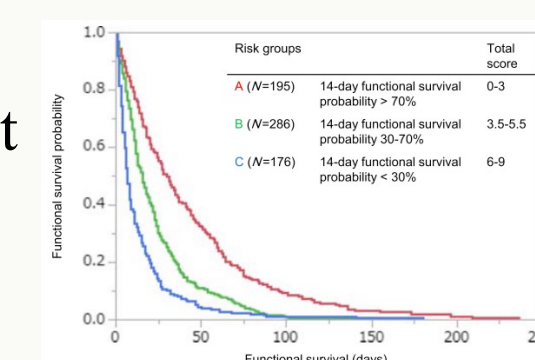(3-7 weeks)

68   5   1   1

Discussion

- We studied the ADL trajectories of cancer patients in the PCU at the end of life but couldn't determine their DFS from admission (Soeda 2024).
- Hiratsuka et al. identified factors affecting walking, eating, and communicating two weeks post-admission but did not indicate DFS (Hiratsuka 2021).
- This study first identifies DFS in PCU cancer patients.
- Consider the difference in DFS duration as a difference in ADL difficulty. The Eating item group may have comprised patients with poor prognoses (based on mGPS and NLR values).

Conclusion & Future Research

- **Eating, Toileting, and Walking items become non-independent about one month after PCU admission.**
- Palliative care professionals should plan patient care and living arrangements for one month.
- Future research will identify factors related to DFS and test whether rehabilitation can maintain ADL (i.e., prolong DFS).

Reference

-Akazawa T, et al. Self-perceived burden in terminally ill cancer patients: a categorization of care strategies based on bereaved family members' perspectives. J Pain Symptom Manage. 2010;40(2):224-234
- Aso S, et al. Association between temporary discharge from the inpatient palliative care unit and achievement of good death in end-of-life cancer patients: A nationwide survey of bereaved family members. Jpn J Nurs Sci. 2022;19(3)
-Soeda R, et al. Trajectories of Activities of Daily Living in the Last Eight Weeks of Life Among Patients With Terminal Cancer in a Palliative Care Unit: A Retrospective Study. Palliat Med Rep. 2024 Feb 2;5(1):63-69.
- Hiratsuka Y, et al. The Functional Palliative Prognostic Index: a scoring system for functional prognostication of patients with advanced cancer. Support Care Cancer. 2020;28(12)