

Title: Exploring the optimal indicator of short-term peridiagnosis weight dynamics to predict cancer survival: A multicenter cohort study

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Supplementary files

Number	Item
1	Table S1. Inclusion and exclusion criteria for the Investigation on Nutrition Status and its Clinical Outcome of Common Cancers (INSCOC) project
2	Table S2. Additional comparison for the Harrell's C-indices of different weight-related measures
3	Table S3. Stratified analyses on the association of peridiagnosis weight change with all-cause mortality
4	Figure S1. A flowchart of the patient inclusion

Table S1. Inclusion and exclusion criteria for the INSCOC project

Inclusion criteria	Exclusion criteria
1) Age at least 18 years;	1) With organ transplantation;
2) With length of hospital stay longer than 48 hours;	2) Pregnant woman;
3) Diagnosed with one of the following 18 types of locally or metastatic malignant tumors: lung cancer, gastric cancer, liver cancer, colorectal cancer, breast cancer, esophageal cancer, cervical cancer, endometrial cancer, nasopharyngeal carcinoma, malignant lymphoma, leukemia, pancreatic cancer, ovarian cancer, prostate cancer, bladder cancer, brain tumors, biliary tract malignant tumors and gastrointestinal stromal tumors	3) Diagnosed with HIV infection or AIDS;
	4) Admitted to the ICU at the beginning of recruitment;
	5) If patients were hospitalized more than two times during the investigation, only the data from the first survey were included

Abbreviations: INSCOC, Investigation on Nutrition Status and its Clinical Outcome of Common Cancers (chictr.org.cn: ChiCTR1800020329); HIV, human immunodeficiency virus; AIDS, acquired immunodeficiency syndrome; ICU, intensive care unit.

Table S2. Additional comparison for the Harrell's C-indices of weight-related indicators

Index	Harrell's C-index (95%CI)	<i>P</i>
Point BMI data, kg/m ²		
One mon ⁻	0.518 (0.498, 0.538)	<0.001
Baseline	0.530 (0.510, 0.550)	<0.001
One mon ⁺	0.578 (0.558, 0.598)	Reference
Absolute weight change, kg		
One mon ⁻ to baseline	0.543 (0.525, 0.561)	<0.001
Baseline to one mon ⁺	0.588 (0.572, 0.604)	0.028
One mon ⁻ to one mon ⁺	0.598 (0.580, 0.616)	Reference
Absolute BMI change		
One mon ⁻ to baseline	0.544 (0.526, 0.562)	<0.001
Baseline to one mon ⁺	0.588 (0.572, 0.604)	0.019
One mon ⁻ to one mon ⁺	0.599 (0.581, 0.617)	Reference
Relative weight change		
One mon ⁻ to baseline	0.545 (0.527, 0.563)	<0.001
Baseline to one mon ⁺	0.590 (0.574, 0.606)	0.015
One mon ⁻ to one mon ⁺	0.601 (0.583, 0.619)	Reference
One mon ⁻ to baseline, type 1		
Absolute weight change, kg	0.543 (0.525, 0.561)	0.005
Absolute BMI change, kg/m ²	0.544 (0.526, 0.562)	0.042
Relative weight change, %	0.545 (0.527, 0.563)	Reference
Baseline to one mon ⁺ , type 1		
Absolute weight change, kg	0.588 (0.572, 0.604)	0.007
Absolute BMI change, kg/m ²	0.588 (0.572, 0.604)	0.049
Relative weight change, %	0.590 (0.574, 0.606)	Reference
One mon ⁻ to one mon ⁺ , type 1		
Absolute weight change, kg	0.598 (0.580, 0.616)	<0.001
Absolute BMI change, kg/m ²	0.599 (0.581, 0.617)	0.013
Relative weight change, %	0.601 (0.583, 0.619)	Reference
One mon ⁻ to baseline, type 2		
Absolute weight change, kg	0.543 (0.525, 0.561)	0.049
Absolute BMI change, kg/m ²	0.544 (0.526, 0.562)	Reference
Baseline to one mon ⁺ , type 2		
Absolute weight change, kg	0.588 (0.572, 0.604)	0.937
Absolute BMI change, kg/m ²	0.588 (0.572, 0.604)	Reference
One mon ⁻ to one mon ⁺ , type 2		
Absolute weight change, kg	0.598 (0.580, 0.616)	0.303
Absolute BMI change, kg/m ²	0.599 (0.581, 0.617)	Reference

Abbreviations: CI, confidence interval; BMI, body mass index; 1 mon⁻, one month before diagnosis; baseline, at the time of diagnosis; 1 mon⁺, 1 month following diagnosis.

Table S3. Stratified analyses on the association of peridiagnosis weight change with overall survival

Models ¹	Relative weight change from one month before baseline to one month after baseline				
	Significant gain (>10%)	Moderate gain (5%–10%)	Maintenance (<5%)	Moderate loss (5%–10%)	Significant loss (>10%)
All patients, events/no.	72/915 0.530 (0.413, 0.680)	38/487 0.588 (0.422, 0.819)	472/3476 1 [Reference]	192/1154 1.219 (1.029, 1.443)	252/1428 1.280 (1.095, 1.497)
Age < 60, events/no.	33/530 0.497 (0.343, 0.721)	21/280 0.737 (0.469, 1.158)	198/1841 1 [Reference]	81/570 1.326 (1.021, 1.721)	112/703 1.494 (1.178, 1.894)
Age ≥ 60, events/no.	39/385 0.571 (0.407, 0.801)	17/207 0.465 (0.284, 0.760)	274/1635 1 [Reference]	111/584 1.103 (0.882, 1.379)	140/725 1.063 (0.863, 1.310)
Women, events/no.	30/350 0.617 (0.415, 0.919)	7/158 0.330 (0.154, 0.706)	144/1155 1 [Reference]	57/387 1.237 (0.908, 1.684)	55/398 0.958 (0.697, 1.317)
Men, events/no.	42/565 0.475 (0.344, 0.656)	31/329 0.692 (0.478, 1.003)	328/2321 1 [Reference]	135/767 1.214 (0.991, 1.487)	197/1030 1.401 (1.169, 1.679)
Respiratory cancer, events/no.	36/423 0.678 (0.472, 0.972)	18/231 0.699 (0.429, 1.137)	187/1670 1 [Reference]	78/468 1.430 (1.093, 1.872)	97/507 1.807 (1.408, 2.320)
Gastrointestinal cancer, events/no.	36/492 0.456 (0.321, 0.646)	20/256 0.512 (0.325, 0.807)	285/1806 1 [Reference]	114/686 1.092 (0.877, 1.360)	155/921 1.039 (0.851, 1.269)
Clinical stage I-II, events/no.	20/409 0.548 (0.340, 0.882)	10/226 0.535 (0.280, 1.022)	125/1506 1 [Reference]	51/448 1.385 (0.995, 1.927)	65/574 1.225 (0.897, 1.672)
Clinical stage III-IV, events/no.	52/506 0.512 (0.382, 0.687)	28/261 0.588 (0.399, 0.865)	347/1970 1 [Reference]	141/706 1.162 (0.954, 1.416)	187/854 1.272 (1.061, 1.527)
BMI, 1 mon−, <24 kg/m ² , events/no.	63/737 0.544 (0.414, 0.716)	29/321 0.665 (0.453, 0.975)	297/2153 1 [Reference]	115/688 1.229 (0.988, 1.529)	139/726 1.398 (1.137, 1.719)
BMI, 1 mon−, ≥24 kg/m ² , events/no.	9/178 0.410 (0.210, 0.803)	9/166 0.389 (0.199, 0.761)	175/1323 1 [Reference]	77/466 1.333 (1.017, 1.747)	113/702 1.274 (0.999, 1.624)
Surgery, no, events/no.	51/448 0.620 (0.459, 0.836)	22/240 0.548 (0.354, 0.846)	309/2089 1 [Reference]	133/714 1.358 (1.105, 1.668)	179/947 1.392 (1.153, 1.681)
Surgery, yes, events/no.	21/467 0.369 (0.233, 0.583)	16/247 0.566 (0.338, 0.948)	163/1387 1 [Reference]	59/440 1.121 (0.830, 1.514)	73/481 1.190 (0.897, 1.579)
Adjuvant chemotherapy, no, events/no.	63/647 0.641 (0.489, 0.840)	29/346 0.587 (0.402, 0.858)	356/2674 1 [Reference]	167/953 1.385 (1.151, 1.668)	225/1220 1.463 (1.233, 1.737)
Adjuvant chemotherapy, yes, events/no.	9/268 0.223 (0.112, 0.441)	9/141 0.488 (0.247, 0.966)	116/802 1 [Reference]	25/201 0.996 (0.643, 1.544)	27/208 0.749 (0.486, 1.154)
Curative chemotherapy, no, events/no.	58/759 0.579 (0.438, 0.765)	27/400 0.562 (0.380, 0.831)	367/2949 1 [Reference]	149/981 1.273 (1.050, 1.542)	202/1248 1.260 (1.056, 1.503)
Curative chemotherapy, yes, events/no.	14/156	11/87	105/527	43/173	50/180

	0.419 (0.235, 0.745)	0.544 (0.291, 1.018)	1 [Reference]	1.277 (0.885, 1.841)	1.556 (1.104, 2.193)
Nutritional intervention, no, events/no.	54/654	30/346	383/2585	147/743	161/827
	0.509 (0.382, 0.678)	0.552 (0.381, 0.802)	1 [Reference]	1.374 (1.134, 1.663)	1.314 (1.090, 1.583)
Nutritional intervention, yes, events/no.	18/261	8/141	89/891	45/411	91/601
	0.646 (0.387, 1.078)	0.538 (0.260, 1.112)	1 [Reference]	1.029 (0.717, 1.478)	1.308 (0.972, 1.760)
Length of hospital stay, <30d, events/no.	61/835	36/457	438/3185	182/1040	219/1245
	0.473 (0.362-0.620)	0.563 (0.400-0.791)	1 [Reference]	1.247 (1.048-1.484)	1.200 (1.018-1.416)
Length of hospital stay, ≥30d, events/no.	11/80	2/30	34/291	10/114	33/183
	1.058 (0.516-2.168)	0.454 (0.107-1.924)	1 [Reference]	0.875 (0.428-1.790)	1.343 (0.819-2.201)

Abbreviation: BMI, body mass index; 1 mon–, 1 month before baseline.

¹Models were adjusted for baseline age (continuous), sex (reference=female), smoking (reference=no), drinking (reference=no), residency (reference=rural), cancer type (reference=gastrointestinal cancer), clinical stage (reference=I), surgery (reference=no), adjuvant chemotherapy (reference=no), curative chemotherapy (reference=no), any parenteral and/or enteral nutritional intervention (reference=no), food intake (reference=reduced) and the Eastern Cooperative Oncology Group (ECOG) score (reference=0).

Figure S1

