

Table S1 Assessment indexes and approaches of malnutrition screening tools

Tools	Year of validation	Characteristics	Applied parameters	Assessment approaches	
				Assessment outcome	Nutritional status
ESPEN 2015	2015	Diagnosis consensus of malnutrition independent of clinical setting and etiology	Option 1: BMI <18.5 kg/m ² ; option 2: unintentional weight loss (mandatory) and at least one of either reduced BMI or low FFMI	Either 1 or 2	Malnourished
				Neither 1 or 2	Not malnourished
MUST	2003	To detect malnutrition for adults	BMI, weight loss and prevalence of acute disease	Score 0	Mild risk
				Score 1	Moderate risk
				Score ≥2	Severe risk
NRS 2002	2002	Based on analyses of controlled clinical trials	Weight loss, food intake, BMI, and severity of disease	Score 0–2	Mild risk
				Score 3–4	Moderate risk
				Score ≥5	Severe risk
MNA-SF	2001	To detect malnutrition for elderly persons	Appetite loss, weight loss, mobility, psychological stress or acute disease, neuropsychological problems, and BMI	Score 12–14	Mild risk
				Score 8–11	Moderate risk
				Score ≤7	Severe risk

ESPEN 2015, European Society of Clinical Nutrition and Metabolism consensus on malnutrition diagnosis [2015]; NRS 2002, Nutritional Risk Screening 2002; MUST, Malnutrition Universal Screening Tool; MNA-SF, Short-Form of Mini-Nutritional Assessment; BMI, body mass index; FFMI, fat-free mass index.

Table S2 Cross-tabulation of malnutrition risk screened by ESPEN 2015 and the other four tools

ESPEN 2015	MUST				NRS 2002				MNA-SF			
	Mild risk	Moderate/severe risk	Mild/moderate risk	Severe risk	Mild risk	Moderate/severe risk	Mild/moderate risk	Severe risk	Mild risk	Moderate/severe risk	Mild/moderate risk	Severe risk
Malnourished	79 (36.1)	86 (39.3)	141 (64.4)	24 (11.0)	68 (31.1)	97 (44.3)	145 (66.2)	20 (9.1)	48 (21.9)	117 (53.4)	159 (72.6)	6 (2.7)
Not malnourished	0 (0.0)	54 (24.7)	13 (5.9)	41 (18.7)	2 (0.9)	52 (23.7)	22 (10.0)	32 (14.6)	2 (0.9)	52 (23.7)	25 (11.4)	29 (13.2)

Data are n (%). ESPEN 2015, European Society of Clinical Nutrition and Metabolism consensus on malnutrition diagnosis [2015]; MUST, Malnutrition Universal Screening Tool; NRS 2002, Nutritional Risk Screening 2002; MNA-SF, Short-Form of Mini-Nutritional Assessment.

Table S3 Intraoperative parameters and postoperative complications according to different malnutrition risk screening tools

Variables	ESPEN 2015			MUST			NRS 2002			MNA-SF			
	Total patients	Malnourished patients (n=54)	Not malnourished patients (n=165)	P	Severe malnutrition (n=65)	Mild/moderate malnutrition (n=154)	P	Severe malnutrition (n=52)	Mild/moderate malnutrition (n=167)	P	Severe malnutrition (n=35)	Mild/moderate malnutrition (n=184)	
Intraoperative parameters													
Operative time, min	172 [152–212]	182 [146–232]	167 [152–207]	0.35	182 [152–237]	168 [151–206]	0.13	182 [152–232]	167 [145–207]	0.19	202 [157–242]	165 [146–207]	0.004
≤200	152 (69.4)	34 (63.0)	118	0.24	38 (58.5)	114 (74.0)	0.022	33 (63.5)	119 (71.3)	0.29	17 (48.6)	135 (73.4)	0.004
>200	67 (31.6)	20 (37.0)	47		27 (41.5)	40 (26.0)		19 (36.5)	48 (28.7)		18 (51.4)	49 (26.6)	
IBL > 100 mL	100 [50–150]	100 [50–225]	100 [50–150]	0.089	100 [50–200]	100 [50–150]	0.034	100 [50–200]	100 [50–150]	0.40	100 [100–200]	100 [50–150]	0.012
≤150	178 (81.3)	39 (72.2)	139	0.049	47 (72.3)	131 (85.1)	0.027	38 (73.1)	140 (83.8)	0.083	25 (71.4)	153 (83.2)	0.10
>150	41 (18.7)	15 (27.8)	26		18 (27.7)	23 (14.9)		14 (26.9)	27 (16.2)		10 (28.6)	31 (16.8)	
Cardiac complications	33 (15.1)	13 (24.1)	20 (12.4)	0.033	8 (12.3)	25 (16.2)	0.46	6 (11.5)	27 (16.2)	0.42	8 (22.9)	25 (13.6)	0.16
Myocardial arrhythmia	31 (14.2)	11 (20.4)	20 (12.4)	0.13	6 (9.2)	25 (16.2)	0.17	4 (7.7)	27 (16.2)	0.13	6 (17.1)	25 (13.6)	0.77
Heart failure	6 (2.7)	2 (3.7)	4 (2.5)	0.98	2 (3.1)	4 (2.6)	1.00	2 (3.7)	4 (2.4)	0.94	2 (5.7)	4 (2.2)	0.25
Respiratory complications	40 (18.3)	28 (51.9)	12 (7.5)	<0.001	27 (41.5)	13 (8.4)	<0.001	25 (48.1)	15 (9.0)	<0.001	18 (51.4)	22 (12.0)	<0.001
Pneumonia	26 (11.9)	24 (44.4)	2 (1.2)	<0.001	21 (32.3)	5 (3.2)	<0.001	19 (36.5)	7 (4.2)	<0.001	14 (40.0)	12 (6.5)	<0.001
Pleural effusion	14 (6.4)	4 (7.4)	10 (6.2)	0.98	6 (9.2)	8 (5.2)	0.42	6 (11.5)	8 (4.8)	0.16	4 (11.4)	10 (5.4)	0.34
Respiratory failure	6 (2.7)	6 (11.1)	0 (0.0)	<0.001	6 (9.2)	0 (0.0)	0.001	6 (11.5)	0 (0.0)	<0.001	4 (11.4)	2 (1.1)	0.007
Anastomotic leakage	9 (4.1)	7 (13.0)	2 (1.2)	0.001	7 (10.8)	2 (1.3)	0.004	7 (13.5)	2 (1.2)	0.001	4 (11.4)	5 (2.7)	0.055
Infectious complications	18 (8.2)	10 (18.5)	8 (5.0)	0.004	10 (15.4)	8 (5.2)	0.012	10 (19.2)	8 (4.8)	0.003	8 (22.9)	10 (5.4)	0.002
Vocal cord palsy	24 (11.0)	8 (14.8)	16 (8.7)	0.30	7 (10.8)	17 (11.0)	0.95	5 (9.6)	19 (11.4)	0.72	6 (17.1)	18 (9.8)	0.33
Overall complications	99 (45.2)	45 (83.3)	54 (32.3)	<0.001	41 (63.1)	58 (37.7)	0.001	33 (63.5)	66 (39.5)	0.002	26 (74.3)	73 (39.7)	<0.001
Clavien-Dindo complication classifications													
Grade I	13 (5.9)	3 (5.6)	10 (5.0)	<0.001	6 (9.2)	7 (4.5)	<0.001	6 (11.5)	7 (4.2)	<0.001	0 (0.0)	13 (7.1)	<0.001
Grade II	44 (20.1)	16 (29.6)	28 (17.4)		10 (15.4)	34 (22.1)		4 (7.7)	40 (24.0)		12 (34.3)	32 (17.4)	
Grade III	24 (11.0)	12 (22.2)	12 (7.5)		9 (13.8)	15 (9.7)		9 (17.3)	15 (9.0)		2 (5.7)	22 (12.0)	
Grade IV	16 (7.3)	12 (22.2)	4 (2.5)		14 (21.5)	2 (1.3)		12 (23.1)	4 (2.4)		10 (28.6)	6 (3.3)	

Table S3 (continued)

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Variables	ESPEN 2015		MUST		NRS 2002		MNA-SF			
	Total patients	Malnourished patients (n=54)	Not malnourished patients (n=165)	P	Severe malnutrition (n=65)	Mild/moderate malnutrition (n=154)	P	Severe malnutrition (n=35)	Mild/moderate malnutrition (n=184)	P
Grade V	2 (0.9)	2 (3.7)	0 (0.0)	0.001	2 (3.1)	0 (0.0)	0 (0.0)	2 (5.7)	0 (0.0)	<0.001
Readmission to ICU	16 (7.3)	10 (18.5)	6 (3.7)	0.001	12 (18.5)	4 (2.6)	6 (3.6)	8 (22.9)	8 (4.3)	<0.001
Recovery characteristics										
EOF enrollment	199 (90.9)	43 (79.6)	156 (95.0)	0.002	53 (81.5)	146 (94.8)	0.002	42 (80.7)	157 (94.0)	0.009
EOF failure ^a	16 (8.0)	12 (27.9)	4 (2.6)	<0.001	12 (22.6)	4 (2.7)	<0.001	12 (28.6)	4 (2.5)	<0.001
Length of postoperative stay	9.0 [8.0–12.0]	13.0 [10.0–19.8]	8.0 [7.0–10.0]	<0.001	11.0 [9.0–16.0]	8.0 [7.0–11.0]	<0.001	12.0 [8.0–20.5]	9.0 [7.0–11.0]	<0.001
≤12	171 (78.1)	27 (50.0)	144	<0.001	38 (58.5)	133 (86.4)	<0.001	30 (57.7)	141 (84.4)	<0.001
>12	48 (21.9)	27 (50.0)	21	<0.001	27 (41.5)	21 (13.6)	<0.001	22 (38.5)	26 (15.6)	<0.001

Data are n (%) or median [IQR]. P values comparing severe malnutrition and mild/moderate malnutrition are from Mann-Whitney U test, Pearson's χ^2 test, Fisher's exact test, or Kruskal-Wallis test. ^a, only patients with EOF enrollment were included in analyses. GLIM, Global Leadership Initiative on Malnutrition; ESPEN 2015, European Society of Clinical Nutrition and Metabolism consensus on malnutrition diagnosis [2015]; MUST, Malnutrition Universal Screening Tool; NRS 2002, Nutritional Risk Screening 2002; MNA-SF, Short-Form of Mini-Nutritional Assessment; IBL, intraoperative blood loss; ICU, intensive care unit; EOF, early oral feeding.