NUTRITION AS AN INTEGRATED PART OF SUPPORTIVE CANCER CARE

NORDIC EXPERT OPINION BASED ON INTERNATIONAL GUIDELINES[1]

1. Based on ESPEN Guidelines, GLIM Criteria, The Lancet Oncology: Quality-of-life assessment in palliative care

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Step 1

Assess all patients for risk of malnutrition

Step 2

At risk of malnutrition:
Set the diagnosis using the GLIM criteria
(apply ICD code for malnutrition)

Not at risk:
Reassess weekly or at next visit

Step 3

Assess cancer trajectory
- Anti cancer treatment
- Palliative/Supportive Care

Step 4

Treatment Intention[2]:
- Curative, Life prolonging
- Symptom relief
- End of life care

Step 5

Patient involvement:
Discuss prognosis of disease with health care team, patient & carers. Offer nutrition if wish of patient & carer

IF → **End of life care**

- Consult with patients and carers
- Give symptom relief and relief for nutritional impact symptoms
- Give water to avoid delirium
- Give comfort food

IF

Step 6

Curative, Life Prolonging or Symptom Relief
If functional GI tract consider mixed approach to meet nutritional target

Nutritional target
25-30 kcal/kg/day
1-1.5 g protein/kg/day
Weight stable

- Parenteral Nutrition
- Enteral Nutrition
- Oral Nutritional Supplements
- Food Fortification

Nutritional Counseling incl. nutritional impact symptoms and physical activity

Step 7

Assess and reassess
Were nutritional targets met?

2. **Treatment intention:** ***Curative treatment:*** intent of curing the patient, ***Life extending treatment:*** Medical treatment to prolong life, ***Symptom relief treatment:*** Treatment to relieve symptoms for the patient, ***End of life treatment:*** Care given to people who are near the end of life and have stopped treatment to cure or control their disease.

GLIM Diagnosis of Malnutrition:

Minimum 1 Phenotypic and 1 Etiologic criteria

	> 1 PHENOTYPIC CRITERIA	> 1 ETIOLOGIC CRITERIA
	INVOLUNTARY WEIGHT LOSS > 5% within past 6 months > 10% beyond 6 months	**REDUCED FOOD INTAKE OR ASSIMILATION** ≤ 50% of energy requirement for > 1 week or any reduction for > 2 weeks or chronic GI condition impacting assimilation /absorbtion
OR	**LOW BMI** BMI < 20 if <70 years / BMI < 22 if > 70 years	**INFLAMMATION** Biomarkers of acute or chronic inflammation[4]
OR	**LOW MUSCLE MASS** Cutoffs depends on methodology used for assessment[3]	

[3] **Use hand grip strength cutoff:**
if hand grip strength < 27 kg in men / if hand grip strength < 16 kg in women
Or Appendicular Skeletal Musle Mass Index (ASMI) cut off:
< 7.0 kg/m^2 for men / < 5.5 kg/m^2 for women

[4] **For example CRP, Albumin, Glasgow Prognostic Score**

Modified from Cederholm T et al Clin Nutr. 2019 Feb;38(1):1-9 and Cruz-Jentoft AJ et al. Age and ageing 2019 1: 48(1):16-31

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5. Based on: ESPEN guidelines on nutrition in cancer patients. Clin Nutr. 2017 Feb;36(1):11-48. The alphabetical numbering refers to the ESPEN paper. The codings in the table refer to the original paper.

1. Screen for risk of malnutrition and take action

a. All patients with cancer must be screened for risk of malnutrition at diagnosis and at regularly intervals using a validated screening tool by the nurses (e.g. NRS-2002, MNA short form, PG-SGA short form) (B1-1).
b. Abnormal screening should result in objective & quantitative assessment of nutritional intake, nutritional impact symptoms, muscle mass, physical performance and degree of systemic inflammation (B1-2).
c. Diagnosis of malnutrition should be done e.g. by use of GLIM criteria by the dietitian/physician. Apply ICD code for malnutrition.

2. Decide on nutritional purpose and goals with consideration to intent of treatment and treatment modality

Curative treatment

Radiotherapy

- During radiotherapy (RT) - with special attention to RT of the head and neck, thorax and gastrointestinal tract - an adequate nutritional intake should be ensured primarily by individualized nutritional counseling and/or with use of oral nutritional supplements (ONS), in order to avoid nutritional deterioration, maintain intake and avoid RT interruptions. (C2-1).
- Enteral feeding using naso-gastric or percutaneous tubes is recommended in radiation-induced severe mucositis or in obstructive tumors of the head-neck or thorax. (C2-2).
- Screen for and manage dysphagia and to encourage and educate patients on how to maintain their swallowing function during enteral nutrition. (C2-3).
- Parenteral nutrition is not recommended as a general treatment in radiotherapy but only if adequate oral/enteral nutrition is not possible, e.g. in severe radiation enteritis or severe malabsorption. (C2-6).

Medical oncology

- During anticancer drug treatment ensure an adequate nutritional intake and maintain physical activity. (C3-1).
- If oral food intake is inadequate despite counselling and oral nutritional supplements, it is recommended to supplement with enteral or, if this is not sufficient or possible, parenteral nutrition. (C3-2).

Life extending treatment

Symptom Relief

Symptom relief

- If found at risk, assess these patients further for both treatable nutrition impact symptoms and metabolic derangements. Offer and implement nutritional interventions in patients with advanced cancer only after considering together with the patient the prognosis of the malignant disease and both the expected benefit on quality of life and potentially survival as well as the burden associated with nutritional care. (C6-1).

End-of-life treatment

End of life care

- In dying patients, treatment should be based on comfort. Enteral and parenteral nutrition are unlikely to provide any benefit for most patients. However, in acute confusional states, it is recommended to use a short and limited hydration to rule out dehydration as precipiting cause. (C6-3).

3. Consider general conditions for a modified diet intervention

Energy:

- Total energy expenditure of cancer patients, if not measured individually, should be assumed to be similar to healthy subjects and generally ranging between 25 and 30 kcal/kg/day. (B2-1).

Protein:

- Protein intake should be above 1 g/kg/day and, if possible up to 1,5 g/kg/day. (B2-2).

Vitamins & minerals:

- Vitamins and minerals should be supplied in amounts approximately equal to the RDA and the use of high-dose micronutrients in the absence of specific deficiencies is discouraged. (B2-4).

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4. Follow up and adjust nutritional intervention in line with nutritional purpose

- If a decision has been made to feed a patient, enteral nutrition is recommended if oral nutrition remains inadequate despite nutritional interventions (counselling, ONS), and parenteral nutrition if enteral nutrition is not sufficient or feasible. (B3-3).