Nutrition and the Patient with Cancer

Heidi Ganzer DCN, RDN, CSO, LD
Certified Specialist in Oncology Nutrition
Allina Health Cancer Institute

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1

Disclosure

- The speaker has nothing to disclose

2

2

Objectives

- Participants will be able to:
  - Identify validated malnutrition screening tools used within the oncology outpatient/ambulatory setting
  - Identify why screening in this population is so important
  - Describe the prevalence of malnutrition within the oncology population
    - Cancer cachexia
    - Refeeding syndrome
  - Recognize reputable nutrition related resources for providers and patients

3

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Malnutrition

- Estimated to occur in ~80% of cancer patients[1]
  - At diagnosis, 40-80% of GI, pancreatic, head and neck and colorectal cancers have signs of nutritional impairment[2]
  - Cancer related malnutrition results in accelerated weight loss triggered by[1]
    - Systemic inflammation and catabolic factors
  - Negative energy balance and skeletal muscle loss is also driven by
    - Poor oral intake related to tumor or treatment (nutrition impact symptoms or NIS)
    - Metabolic alterations (elevated resting energy expenditure, insulin resistance, lipolysis and proteolysis)
  - Involuntary weight loss of just 5% decreases survival[3]

4

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Malnutrition

- Academy of Nutrition and Dietetics Evidence Analysis Library[1,4]
  - Grade 1 (strong) evidence demonstrating the association between poor nutritional status (adult) and:
    - Decreased tolerance to radiation treatment
    - Decreased tolerance to chemotherapy
    - Increased hospital length of stay
    - Lower quality of life
    - Mortality
- Higher rates of malnutrition are found within:
  - Head and neck cancer
  - Esophageal
  - Gastric
  - Hepatobiliary
  - Pancreatic
  - Lung

5

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Malnutrition

- Despite high rates of malnutrition, <60% of patients classified as malnourished receive no nutritional intervention of any type[1]
- Why?
  - ~ 90% of oncology treatment occurs in ambulatory centers
  - Screening tools are ambiguous and inconsistently applied within ambulatory settings (vs inpatient screening)
  - Medical nutrition therapy (MNT) is not consistently included in multidisciplinary care
  - A lack of oncology dietitians (1 Oncology RD:2308-2674 patients)[1,2]
  - Insurance Coverage
  - Reimbursement

6

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Malnutrition Screening Tools

- Screening[5]
  - Should be simple, quick and easy to use
  - Done by any member of the team
  - Identifies those patients experiencing or at risk for malnutrition
  - Ensures proactive nutrition care
  - Should be conducted on initial oncology service visit
  - Applied routinely throughout treatment for RD to assess status
  - Helps prioritize care

7

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Validated Screening Tools in the Oncology Setting[4-6]

- Malnutrition Screening Tool (MST)*
- Patient-Generated Subjective Global Assessment (PG-SGA)*
  - Screening and assessment
  - Short form
- Nutriscore*
  - Newer validated tool (2017)
- Malnutrition Universal Screening Tool (MUST)
- Malnutrition Screening Tool for Cancer Patients (MSTC)

*MST, PG-SGA and Nutriscore all validated in the outpatient ambulatory setting
(MST used within all ambulatory oncology clinics within AHCI, also used inpatient)

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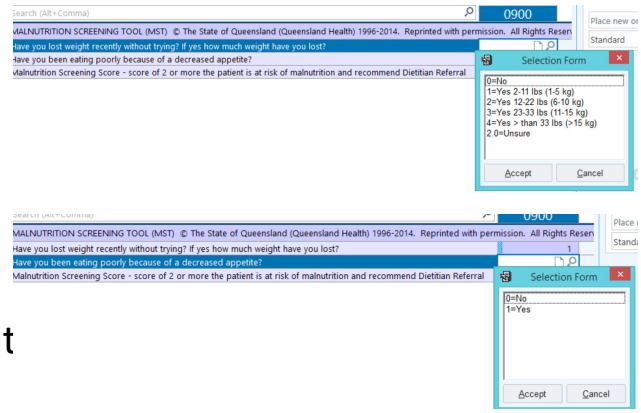
Malnutrition Screening Tool (MST)[7-8]

- Very easy to use
  - 2 data points
- Purely a screening tool
- Validated
  - Inpatient
  - Outpatient
- Score ≥ 2 = nutrition consult
- Dietitian completes full assessment



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9

Nutrition Assessment: Malnutrition Defined

American Society of Enteral and Parenteral Nutrition (ASPEN)/Academy of Nutrition and Dietetics[9]

Malnutrition Criteria	Severe Malnutrition			Moderate Malnutrition		
	Acute Illness	Chronic Illness	Social Circumstances	Acute Illness	Chronic illness	Social Circumstances
Weight loss	>2% in 1 wk >5% in 1 mo >7.5% in 3 mo	>5% in 1 mo >7.5% in 3 mo >10% in 6 mo >20% in 12 mo	>5% in 1 mo >7.5% in 3 mo >10% in 6 mo >20% in 12 mo	1%–2% in 1 wk 5% in 1 mo 7.5% in 3 mo	5% in 1 mo 7.5% in 3 mo 10% in 6 mo 20% in 12 mo	5% in 1 mo 7.5% in 3 mo 10% in 6 mo 20% in 12 mo
Energy intake	≤50% compared with estimated needs for ≥5 d	≤75% compared with estimated needs for ≥1 mo	≤50% compared with estimated needs for ≥ 1 mo	<75% compared with estimated needs for > 7 days	<75% compared with estimated needs for ≥1 mo	<75% compared with estimated needs for ≥3 mo
Body fat and muscle mass	Moderate depletion	Severe depletion	Severe depletion	Mild depletion	Mild depletion	Mild depletion
Fluid accumulation	Moderate to severe	Severe	Severe	Mild	Mild	Mild
Functional status	Measurably reduced	Measurably reduced	Measurably reduced	Not applicable	Not applicable	Not applicable

Minimum of 2 of the 6 characteristics needed for diagnosis of severe or non-severe malnutrition

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10

Cancer Cachexia

- International Concensus[10]
  - A continuum categorized into 3 phases
    - Precachexia
      - No consensus on diagnostic criteria
      - Minimal weight loss (2-5%)
      - Early clinical/metabolic signs predictive of future wt. loss (anorexia, insulin resistance, inflammation and hypogonadism)
    - Cachexia
      - Wt. loss in >5% over 6 months or BMI <20 kg/m^2 with ongoing >2% wt. loss, or depletion of muscle mass and >2% wt. loss
    - Refractory cachexia
      - Clinically resistant catabolic state characterized by poor performance status, progressive cancer, and a life expectancy <3 months
      - Not yet consensus diagnostic criteria for refractory cachexia
    - Not all patients with cancer progress through all stages

11

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Cancer Cachexia

- 2020 American Society of Clinical Oncology (ASCO)guidelines for management of cancer cachexia[11]:
  - Recommendation 1.1:
    - Refer patients to a registered dietitian
      - Goals of providing practical/safe advice for nutrition
      - High calorie/high protein nutrient dense food
  - Recommendation 1.2:
    - Outside of a clinical trial, clinicians should not routinely offer enteral or parenteral nutrition to manage cachexia in pts with advanced cancer
      - Short-term trial of PN may be offered to a select group of pts (reversible bowel obstruction, short bowel syndrome, or other malabsorption issues)

12

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Cancer cachexia

- Recommendation 2.1:[11]
  - Evidence remains insufficient to strongly endorse any pharmacologic agent to improve cancer cachexia outcomes. Currently no FDA-approved medications for the indication of cancer cachexia
- Recommendation 2.2:
  - Clinicians may offer a short-term trial of a progesterone analog or corticosteroid to patients experiencing loss of appetite and/or body weight. Choice of agent and duration of treatment depends on treatment goals/assessment of risk/benefit

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Cancer cachexia

- Symptoms contributing to insufficient intake[11]:
  - Depression, dysgeusia, pain, drowsiness, nausea, constipation
  - Associated with weight loss and decreased survival
  - Retrospective studies show a clinical benefit when NIS are treated
    - Pharmacological therapies for pain, chronic nausea, depression and constipation were well tolerated
    - Medications included metoclopramide, antidepressants, opioids and laxatives
    - Non-pharmacological therapies included nutrition counseling and physical therapy (in combination with medications when indicated)

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Cancer cachexia

- Patient, caregiver and clinician communication (key points)[11]
  - Loss of appetite is common in pts with advanced cancer
  - Trying to force a pt. to eat is counterproductive, may lead to increased N/V
  - In most pts with advanced cancer/cachexia providing additional calories by feeding tube or IV does not improve outcomes
  - Trying to make a pt. eat, if marked loss of appetite, can lead to decreased social interaction and increased patient distress
  - For caregivers, it is best to listen and support patient in a variety of other ways

15

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Refeeding Syndrome[12]

- First described during WWII
  - Prisoners of war, concentration camp survivors and victims of famine
  - 1944, Keys et al evaluated the physiologic effects of prolonged starvation (Minnesota Starvation Experiment)
- Definition
  - A measureable reduction in levels of 1 or any combination of phosphorus, potassium and/or magnesium, or the manifestation of thiamin deficiency, developing shortly (hours to days) after initiation of calorie provision to an individual who has been exposed to a substantial period of undernourishment

16

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American Society of Enteral and Parenteral Nutrition (ASPEN) Consensus Criteria for Identifying Adult Patients at Risk for Refeeding Syndrome[12]

	Moderate Risk:2 Risk Criteria Needed	Significant Risk: 1 Risk Criteria Needed
BMI	16-18.5 kg/m^2	<16 kg/m^2
Weight Loss	5% in 1 month	7.5% in 3 months or >10% in 6 months
Caloric Intake	None or negligible oral intake for 5-6 days **OR** <75% estimated energy requirement for >7 days during acute illness or injury **OR** <75% estimated energy requirement for >1 month	None or negligible oral intake for >7 days **OR** <50% estimated energy requirements for >5 days during acute illness or injury **OR** <50% estimated energy requirement for >1 month
Abnormal prefeeding potassium, phosphorus, or magnesium serum concentrations	Minimally low levels or normal current levels and recent low levels necessitating minimal or single-dose supplementation	Moderately/significantly low levels or minimally low or normal levels and recent low levels necessitating significant or multiple-dose supplementation
Loss of subcutaneous fat	Evidence of moderate loss	Evidence of severe loss
Loss of muscle mass	Evidence of mild or moderate loss	Evidence of severe loss
Higher risk comorbidities	Moderate disease	Severe disease

17

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Refeeding Syndrome

- Diseases and Clinical Conditions[12] Associated with Increased Risk
  - Dysphagia and esophageal dysmotility
  - Malabsorptive states
  - Cancer
  - Chronic alcohol or drug use disorder

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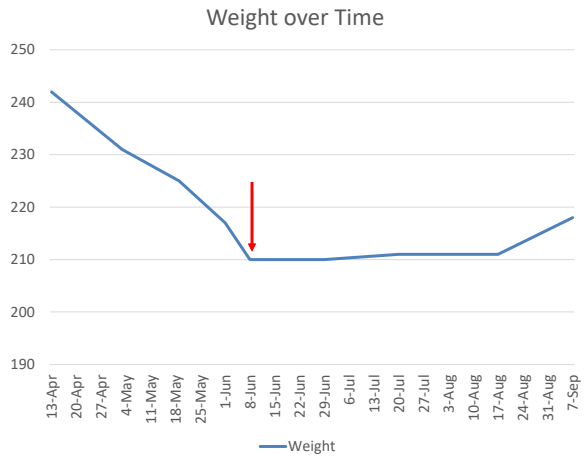
Case Study 1

- Complex patient with HNC
  - Concurrent chemoradiation (weekly Cisplatin, 35 radiation treatments)
    - Declined FT placement initially
    - April starting weight 242 lbs., well-nourished, plant-based diet, just finished a "cleanse diet"
  - Completed CCR
    - Significant pain with eating
    - Significant weight loss
    - Taking nothing by mouth
    - IV fluids



19

19

Case Study 1

- NCCN guidelines for reactive FT[13]
  - <60% of estimated needs, anticipated to be >10 days, significant weight loss
  - Adequate pain management, IV fluids, SLP involvement
- Admitted for reactive FT placement post completion of CCR
  - Diagnosed with moderate/severe malnutrition in the context of acute on chronic malnutrition (weight loss, loss of fat/muscle, intake <75% of estimated needs, anticipated for >10 days as a result of treatment related nutrition impact symptoms)
  - Required admission related to concerns regarding refeeding
  - Gastric feeding tube placed
  - Labs indicated refeeding (low Mg, K+, Phos); replenished
  - Enteral nutrition initiated slowly
- Common concerns
  - Long term reliance on feeding tube
- Weight stabilized after enteral nutrition initiated, tolerated bolus/syringe feedings.
- Working with RD/SLP, resumed oral intake, decreased reliance on feeding tube

20

20

Case Study 2

- Complex patient with esophageal cancer
  - Had perforated esophagus with diagnostics, reported dysphagia and weight loss; no feeding tube
  - Treatment delayed for healing
  - Concurrent chemoradiation (Cisplatin/5FU)
    - RD consult after start, BMI <16
    - Nutrition focused physical exam (NFPE)
      - Severe loss of muscle in the temporal, interosseous, clavicular, arms, legs. Loss of fat in the orbital area
      - Mucositis and thrush
    - Oral intake negligible, odynophagia/dysphagia
    - Diagnosed with severe malnutrition in the context of chronic disease
    - Feeding tube (gastric) recommended
    - Recommended patient be admitted with risk of refeeding

21

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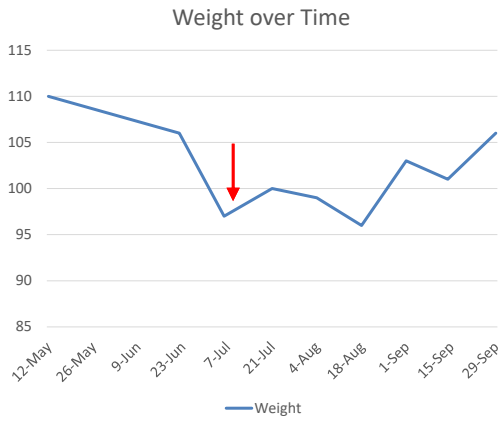
Case Study 2

- High risk for refeeding[12]:
  - BMI <16 √
  - 7.5% in 3 months or >10% in 6 months √
  - None or negligible oral intake for >7 days √
  - **OR** <50% estimated energy requirements for >5 days during acute illness or injury
  - **OR** <50% estimated energy requirement for >1 month
  - Moderately/significantly low levels or minimally low or normal levels and recent low levels necessitating significant or multiple-dose supplementation
  - Evidence of severe loss of subcutaneous fat √
  - Evidence of severe loss muscle mass √
  - High risk comorbidities √



22

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Case Study 2

- Completed treatment
  - Significant weight gain with enteral nutrition
  - BMI now 16.8 (initial visit, 15.2)
  - Energy much improved
  - Labs remain WNL

23

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23

Bottom Line on Nutrition

- Screen for risk of malnutrition
  - Allows for ***timely*** intervention
  - Now a system wide oncology nutrition policy
- Referral to RD if ≥ 2 on MST for full nutrition assessment
  - Nutrition intervention, address NIS
  - Monitoring and evaluation/re-evaluation
- Collaboration with team (patient centered)
  - Consistent approach
  - Consistent messaging to patients
  - Realistic expectations

24

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24

Excellent Resources

- Excellent resources:
  - Oncology Nutrition Dietetic Practice Group (ON DPG)[14]
  - www.oncologynutrition.org
  - AKN → Patient Care →Library Services→ Find an e-book→ Oncology Nutrition
    - Oncology Nutrition for Clinical Practice[15]
    - Academy of Nutrition and Dietetics Nutrition Care Manual[16]
    - The Complete Resource Kit for Oncology Nutrition[17]

25

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25

Conclusions

- Providers give consistent messages to common questions
- Provide reputable resources to patients
  - Oncology Nutrition Dietetic Practice Group[14] (www.oncologynutrition.org)
  - American Institute for Cancer Research[18] (www.aicr.org)
  - American Cancer Society[19] (www.cancer.org)
  - National Cancer Institute[20] (www.cancer.gov)

26

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26

Thank You

Thank you for your time and attention!

27

27

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28

28

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29

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29

To Contact Me

- Heidi Ganzer DCN, RDN, CSO, LD
- Heidi.ganzer@allina.com

30

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30