Nutrition support of the patient with cancer

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Nutritional issues in cancer

- Weight loss due to:
  - treatment
  - Nutrition impact symptoms
  - mechanical barriers
  - depression, anxiety
  - pain

- Provision of energy and protein usually results in weight gain

Cachexia

- metabolic abnormalities

$\downarrow$ energy intake
$\uparrow$ energy expenditure

Isenring 2013
AND/ASPEN etiology-based malnutrition definitions

Nutritional Risk Identified
Compromised intake or loss of body mass

Inflammation Present? No / Yes

No

Yes
Mild to Moderate Degree

Yes
Marked Inflammatory Response

Starvation-Related Malnutrition
(pure chronic starvation, anorexia nervosa)

Chronic Disease-Related Malnutrition
(organ failure, pancreatic cancer, rheumatoid arthritis, sarcopenic obesity)

Acute Disease or Injury-Related Malnutrition
(major infection, burns, trauma, closed head injury)

(White et al 2012)
Malnutrition prevalence

- **30-70%** depending on nutritional assessment, stage, tumour type

- associated with negative clinical outcomes ➔ $$$$

(Baldwin Cur Opin Support Palliat Care 2011 5: 29-36; Bozzetti J GerOnc 2011; 177-86; Isenring Nutr Cancer 2010; 62:220-28)

Isenring 2013
Oncology patients at increased nutritional risk

- Malnourished: 1.12
- Consumed ≤ 50% food: 1.33
- Readmissions: 1.05

Agarwal Clin Nutr 2012; 31: 41-7
Isenring 2013
# Evidence-based Guidelines

## Enteral Nutrition/Parenteral

<table>
<thead>
<tr>
<th>Year</th>
<th>Society</th>
<th>Guidelines/Source</th>
<th>Additional Information</th>
</tr>
</thead>
</table>
| 2006 | ESPEN | 1. *Clinical Nutrition* 25 (224-244)  
2. *Clinical Nutrition* 25 (245-259)  
*JPEN* 33 (472-500) | 1. Surgery, Organ Transplantation.  
2. Non-Surgical Oncology.  
Adult Anticancer Treatment |
| 2009 | ASPEN |                |                       |

## Cancer Cachexia

<table>
<thead>
<tr>
<th>Year</th>
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## Radiotherapy/Chemotherapy

<table>
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<tr>
<th>Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>DAA</td>
<td><em>Nutrition and Dietetics</em> 65 (Suppl.1): S1-S20 or <a href="http://www.daa.asn.au">www.daa.asn.au</a></td>
<td>Nutritional management of patients receiving radiation therapy.</td>
</tr>
<tr>
<td>2013</td>
<td>DAA</td>
<td><em>Nutrition and Dietetics</em>- early view</td>
<td>Update of radiation therapy guidelines, including chemotherapy</td>
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## Head and Neck Cancer

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## Broad Oncology Groups

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</table>
NHMRC Evidence hierarchy

- Level I: systematic review of all RCTs
  ↓
- Level IV: evidence obtained from case studies, either post-test or pre-test

Grades of Recommendation

- Level A: body of evidence can be trusted to guide practice
- Level B: ...in most situations
- Level C: ...some support for recommendation(s) but care should be taken in its application
- Level D: ...weak, apply with caution

Isenring 2013
Evidence for practice

• Gold standard = highest level of evidence (I). E.g. meta analysis of RCTs

• Often very difficult, if not impossible to achieve in nutrition interventions i.e. consideration is given to strong study design, strength of effect, minimising bias and relevance

(Isenring et al 2008. Nutrition and Dietetics 65 (Sup 1) S1-20).
Updated evidence-based practice guidelines for the nutritional management of patients receiving radiation therapy and/or chemotherapy

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Acknowledgement: DAA Small Grant
AIMS

To update the *Evidence-Based Practice Guidelines for the Nutritional Management of Radiotherapy* and broaden the scope to include chemotherapy patients.

Consolidate with Evidence Based Practice Guidelines for the Nutritional Management of Adult patients with Head and Neck Cancer to move towards one central set of oncology guidelines.
Q5. What is the impact of the dietitian providing nutrition intervention as part of a multidisciplinary team?

Summary

There are two level II positive quality studies \(^1\) that demonstrate an improvement in patient-centred outcomes such as quality of life, and improved nutritional intake and nutritional status following dietetic counselling for head and neck patients receiving radiotherapy, both during and post treatment. A phase 2 randomized controlled trial, level III-1 neutral quality \(^2\) also reported similar findings with less weight loss and malnutrition following individual dietetic counselling compared to standard care. The UK National Institute for Health and Clinical Excellence publication “Guidance on Cancer Services: Improving Outcomes in Head and Neck Cancers – The Manual” recommends a specialist dietitian as a core member of the multidisciplinary team \(^3\).

A level III-3 neutral quality study \(^4\) found that patients undergoing an early nutrition intervention program, including dietetic contact pre, during and post radiotherapy, had improved outcomes in terms of less weight loss, fewer treatment interruptions and less unplanned admissions. One paper \(^5\) (level III-3, neutral quality) describes the effect of an integrated care program including a dietitian role pre, during and post treatment, which resulted in an 82% increase in patients receiving nutrition support for oral and oropharyngeal cancers. Wood 2005, (level II-3, neutral quality) describes the different outcomes of when a dietitian is present in a multidisciplinary team e.g., patients are more likely to receive pre-treatment dietetic intervention, nutrition guidelines or recommendations are more likely to be followed and the patient is more likely to receive follow up post treatment \(^6\). One level IV neutral quality qualitative paper \(^7\) indicates that there is a patient need for intervention and support throughout the trajectory of care.

Recommendation

A dietitian should be part of the multidisciplinary team for treating head and neck cancer patients throughout the continuum of care, as frequent dietitian contact has been shown to improve nutrition outcomes and quality of life.

References


CLINICAL NUTRITION

Using a wiki platform to promote guidelines internationally and maintain their currency: evidence-based guidelines for the nutritional management of adult patients with head and neck cancer

METHODS- update

- Search strategy: Cochrane Database of Systematic Reviews, CENTRAL, MEDLINE (via Ebscohost), EMBASE, CINAHL (Ebscohost), Web of Science, Health Source: Nursing/Academic Edition and PubMed
- Date limits: Radiotherapy 2007-2012; Chemotherapy: no date limits
- N=47 articles reviewed by at least 2 members of the steering committee: assigned a Level of Evidence (NHMRC) and quality rating (AND Evidence Analysis Manual)
**Appropriate Access to Care**

- Nutrition Screening
- Nutrition Assessment

*How should patients be identified for referral to the dietitian in order to maximise nutritional intervention opportunities?*
*How should nutritional status be assessed?*

**Quality Nutrition Care**

**Nutrition intervention**

- Establishing goals
- Nutrition prescription
- Implementation

*What are the goals of nutrition intervention for patients receiving radiotherapy treatment?*
*What is the nutrition prescription to achieve these goals?*
*What are effective methods of implementation to ensure positive outcomes?*
*Is nutrition intervention beneficial in radiation enteritis?*

**Nutrition Monitoring and Evaluation**

**Measure and Evaluate Outcomes**

- Intermediate
- Clinical/Cost/Patient

*Does nutrition intervention improve outcomes in patients receiving radiotherapy treatment?*
*What nutritional follow-up should patients receiving radiotherapy receive?*
RESULTS

No new nutrition interventions in radiotherapy (non HNC) from 2007-Feb 2012. Evidence remains strong A/B

N=12 nutrition interventions in chemotherapy (all dates)

• 5 RCTs (4 + quality)
• Some found improvements in intermediate outcomes (dietary intake, weight) but most found no benefit for quality of life or survival.
• Most had limitations including methods of nutrition intervention rarely reported in detail and few involved intense or frequent dietitian contact or standardised nutrition counselling.
• Treatment differences between RT and chemotherapy. RT tends to follow predictable, defined treatment period; chemotherapy large differences
Aim for weight maintenance (or at the very least minimise weight loss) during treatment.

Manage nutrition-related symptoms as a multidisciplinary team.

Nutritional management may include texture modification, high energy and protein dietary modifications, supplements and/or tube feeding if inadequate dietary intake.

In some cases may require parenteral nutrition if inadequate intake and GIT not functioning.
Dietary counselling

- Dietary counselling (+/- sups) improves dietary intake in patients receiving radiation therapy (RT)

**NHMRC grade of recommendation: A**

- Dietary counselling (+/- sups) improves QoL and physical function during & post radiation in patients with oesophageal and HNC.

**NHMRC grade of recommendation: B**
## Nutrition Intervention

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<tr>
<td><strong>How should patients be screened and referred to the dietitian?</strong></td>
<td></td>
</tr>
<tr>
<td>All patients receiving radiotherapy to HN or GIT should be referred to the dietitian. Other patients screened with validated tool eg MST. <strong>Grade B</strong></td>
<td>All pts receiving radiotherapy to HN or GIT should be referred to the dietitian. Other pts at nutritional risk (eg receiving chemotherapy) should be screened with validated tool eg MST. <strong>Grade A</strong></td>
</tr>
<tr>
<td>Validated nutrition assessment tools eg PG-SGA, SGA should be used to assess nutritional status in patients receiving radiotherapy. <strong>Grade B</strong></td>
<td>Validated nutrition assessment tools eg PG-SGA, SGA should be used to assess nutritional status in patients receiving radiotherapy and/or chemotherapy. <strong>Level B</strong></td>
</tr>
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## Nutrition Intervention

### 2008 Radiotherapy Guidelines (Isenring et al 2008)

**Does nutrition intervention improve outcomes?**

Regular nutrition intervention (dietary counselling +/- supplements) improves energy & protein intake & nutritional status during radiotherapy.

**Grade A**

Nutrition intervention (dietary counselling +/- supplements) during & post radiotherapy improves patient-centred outcomes (QoL, physical fn, satisfaction).

**Grade B**

### 20013 Updated Radiotherapy &/or Chemotherapy Guidelines (Isenring et al 2013)

**Radiotherapy- Grade A**

Nutrition intervention (dietary counselling +/- supplements) increases dietary intake & weight in chemotherapy patients but not patient-centred outcomes.

**Grade A**

Nutrition intervention (dietary counselling +/- supplements) does not improve survival in patients undergoing chemotherapy or radiotherapy with curative intent.

**Level B**

There is insufficient evidence to support use of antioxidant supplements during radiotherapy and/or chemotherapy treatment.

**Grade A**

Some evidence lower SEs but concerns over interactions

**Grade C**
Should EPA be included in the nutrition prescription?

Meij B et al., 2013; Bauer et al 2006,
Role of EPA

- ↓ inflammatory response
- ↓ pro-inflammatory cytokine production
- attenuates APPR leading to reduced REE
- ↓ level/activity of proteolysis-inducing factor (PIF)
- attenuates cachexia
- slows tumour growth
Dietetic intervention

- Limited discussion in most published trials
  - ? Dietetic counselling
  - ? Nutrition recommendations
  - ? Dietary Intake
  - ? Frequency of contact
Should EPA be included in the nutrition prescription?

A  Body of evidence can be trusted to guide practice

B  Body of evidence can be guided to trust practice in most situations

C  Body of evidence provides some support for recommendation but care should be taken in its application

D  Body of evidence is weak and recommendation must be applied with caution
Should EPA be included in the nutrition prescription?

Practice Recommendation

EPA can be considered as a component of nutrition intervention in cancer cachexia but patients should first be assessed for suboptimal symptom control or inadequate intake. If using EPA, aim for an intake of 1.4 – 2 g EPA/day which needs to be consumed for at least four weeks to achieve clinical benefit.
Areas to watch

- EPA
- Amino acids e.g. arginine, glutamine, carnitine
- managing NIS (ginger, antioxidants)
- Vitamin D
- Nutrition & exercise programs
- Automated screening
Summary

• Malnutrition is common in oncology patients
• Early access to appropriate nutrition care is important to maintain or minimise deterioration in nutritional status & QOL
• Several sets of guidelines present best available evidence for nutritional recommendations including this update of radiotherapy (chemotherapy).
• Further research is required in the area of nutrition and chemotherapy
• As anticancer treatment continues to evolve so to should the nutritional management of these conditions.
References