Nutritional Management in Esophageal Cancer

Kurt Boeykens
Nutrition Nurse Specialist
Are these patients nutritionally at risk?

- If surgery: ‘Major surgery’
- Preoperative treatment
  - Chemotherapy and radiation
- Adaptation period postoperative
- Often inhibited food passage
  - Dysphagia, odynophagia
Post-oesophagectomy early enteral nutrition via a needle catheter jejunostomy: 8-year experience at a specialist unit

Aoife M. Ryan*, Suzanne P. Rowley, Laura A. Healy, Philomena M. Flood, Narayanasamy Ravi, John V. Reynolds

Table 1 Nutritional status at diagnosis per morphology in 205 oesophagectomy cases.

<table>
<thead>
<tr>
<th>Nutritional Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median BMI (kg/m²) at diagnosis</td>
<td>25.5 (16.0–42.13)</td>
</tr>
<tr>
<td>Median weight loss</td>
<td>5.3 (0–40.3%)</td>
</tr>
<tr>
<td>Clinically severe weight loss*</td>
<td>34%</td>
</tr>
<tr>
<td>Clinically significant weight loss**</td>
<td>8%</td>
</tr>
<tr>
<td>Non-significant weight loss</td>
<td>58%</td>
</tr>
<tr>
<td>&gt;10% weight loss</td>
<td>29%</td>
</tr>
<tr>
<td>Actively losing weight at diagnosis</td>
<td>74%</td>
</tr>
<tr>
<td>Subjective global assessment</td>
<td></td>
</tr>
<tr>
<td>SGA severe</td>
<td>6%</td>
</tr>
<tr>
<td>SGA mild-moderately malnourished</td>
<td>25%</td>
</tr>
<tr>
<td>SGA well nourished</td>
<td>47%</td>
</tr>
<tr>
<td>Unavailable</td>
<td>22%</td>
</tr>
<tr>
<td>Nutritional risk index</td>
<td></td>
</tr>
<tr>
<td>Not malnourished</td>
<td>47% (96)</td>
</tr>
<tr>
<td>Mild malnutrition</td>
<td>16% (33)</td>
</tr>
<tr>
<td>Moderate malnutrition</td>
<td>29% (59)</td>
</tr>
<tr>
<td>Severe malnutrition</td>
<td>4% (8)</td>
</tr>
</tbody>
</table>
Malnutrition

- Morbidity ↑
- Wound healing ↓
- Infections ↑
- Complications ↑
- Convalescence ↓

- Mortality ↑
- Treatment ↑
- Length of stay in hospital ↑

↑ COST
↓ QUALITY OF LIFE
Elective surgery

Esophagectomy
Table 4. Key Recommendations for Clinical Practice.

- Patients with upper gastrointestinal (UGI) cancer should undergo nutrition screening and, where found to be at risk, assessed by a dietitian using a validated tool on admission to the hospital.
- Preoperative nutrition support is required only when malnutrition is identified or intake is likely to be greatly reduced.
- Oral or enteral nutrition is recommended to commence within 24 hours of UGI surgery. Parenteral nutrition should be used only when the enteral route is not accessible or requirements are not able to be met by the enteral route alone.
- Nutrition support has a very limited role to play in the patient with UGI cancer who is palliative.
- The patient with UGI cancer should have access to a multidisciplinary health team.
**SNAO**

Short Nutritional Assessment Questionnaire

- Did you lose weight unintentionally?
  - More than 6 kg in the last 6 months
  - More than 3 kg in the last month
- Did you experience a decreased appetite over the last month?
- Did you use supplemental drinks or tube feeding over the last month?

- **0** no intervention
- **1** moderately malnourished: nutritional intervention
- **2** severely malnourished: nutritional intervention and treatment dietician

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**Nutritional Risk Screening 2018 (ESPGEN guideline)**

<table>
<thead>
<tr>
<th>Impaired nutritional status</th>
<th>Severity of disease (+ requirement/steric-embolism)</th>
</tr>
</thead>
</table>
| **Mild**
- Weight loss ≥5% in 3 mths
- Or
- Food intake <50-75% of normal requirement in preceding week
| Mild
- Chronic disease, in particular with acute complications: e.g. chronic obstructive pulmonary disease (COPD)
- Chronic renal failure, diabetes, malignancy oncology |

| Score 1
- BMI 18.5-20.9 + impaired general condition
- Or
- Food intake 25-50% of normal requirement in preceding week
| Score 2
- Head injury (18-19)
- Bone marrow transplantation (20)
- Intensive care patients (APACHE:10) |

| Score 3
- BMI <18.5 + impaired general condition
- Or
- Food intake 75% of normal requirement in preceding week
| Score: + Score: = TOTAL SCORE |

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**MUST**

Malnutrition Universal Screening Tool

**Steps**

1. BMI score
2. Weight loss score
3. Acute disease effect score
4. Overall risk of malnutrition
5. Management guidelines

**Low Risk**

- No risk factors

**Medium Risk**

- 1 risk factor

**High Risk**

- 2 or more risk factors

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**Mini Nutritional Assessment (MNA)**

- 0-2: Malnutrition at risk
- 3-6: Malnutrition
- 7-10: Protein Energy Malnutrition
- 11-14: Severe malnutrition
Nutritional assessment

- Weight loss
  - Recent weight loss and UBW
- Handgrip dynamometry
- GI problems
- Swallowing difficulties
- Diet history/intake
- Laboratory parameters
- BMI (Age-Gender BMI percentiles)
bmi calculator and body weight comparison

BMI = kg/m²

This bmi calculator calculates body mass index from your Weight and Height and also shows how your weight compares to others of the same height.

Weight: ______ pounds ▼
Height: ______ inches ▼ or 5' ▼ 6' ▼

Calculate results: Body Mass Index: ______ kg/m²

Age: ______ years (Adult ▼)
Gender: Male ▼ re-calculate

Body Description: ______

UPDATED -> According to: WHO - CDC ▼

Your weight is at ______ compared to others of same height and age.

If you are at 50th percentile, you are close to the average weight.
At 90th percentile, your weight is greater than 90% of others.
At 20th percentile, than 80% of others weigh more than you.
(Compared to American's weights)
**Study Type:** Observational
**Study Design:** Observational Model: Cohort
**Time Perspective:** Retrospective

**Estimated Enrollment:** 650
**Study Start Date:** July 2013
**Estimated Study Completion Date:** June 2014
**Estimated Primary Completion Date:** October 2013

**Official Title:** Age and Gender Corrected Body Mass Index: When Preoperative Weight Loss and Underweight Are Becoming Clinically Significant in Esophagectomy for Cancer.

**Groups/Cohorts**

- **AG-BMI < 10 pct**
  - Patients who's peroperative BMI is less than the 10th centile

- **AG-BMI >= 10th pct**
  - Patients who's peroperative BMI equals or is greater than the 10th centile

**Detailed Description:**
Age-Gender specific BMI percentiles are more accurate compared to the current BMI classes in predicting Overall Survival (OS) after esophagectomy for cancer. Furthermore we believe in a more devastating impact on OS from underweight and not from overweight.

By preoperatively identifying risk patients for poorer OS, especially the non-tumoral deaths, this can be a tool to tailor postoperative nutritional strategies to counter further weight loss and bringing postoperative weight to normal ranges.
Conclusie AG-BMI

Het 10\textsuperscript{de} AG-BMI-percentiel toont een significant \underline{groter} aantal patiënten met \underline{niet-oncologisch gerelateerde mortaliteit}

- zowel op 1 jaar (13,5\% vs. 6,3\%; p=0,0086)
- als 3 jaar (30,2\% vs. 15,5\%; p<0,0001)

na slokdarmresectie

H. Van Veer, MD
\textit{Thoraxheelkunde}

\textit{Najaarssymposium VVKVM, 14 december 2013}
Preoperative albumin and surgical site identify surgical risk for major postoperative complications
KA Kudsk, EA Tolley, RC DeWitt, PG Janu, AP Blackwell, SYeary and BK King
JPEN J Parenter Enteral Nutr 2003 27: 1

Mortality by site of surgery and preoperative albumin level

<table>
<thead>
<tr>
<th>Albumin category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESO</td>
<td>1/1 (100)</td>
<td>0/4 (0)</td>
<td>3/11 (27)</td>
<td>1/13 (7.7)</td>
<td>1/25 (4)</td>
<td>1/5 (20)</td>
<td></td>
</tr>
<tr>
<td>STOM</td>
<td>2/4 (50)</td>
<td>0/6 (0)</td>
<td>1/16 (6.3)</td>
<td>6/27 (22)</td>
<td>4/33 (12.1)</td>
<td>0/46 (0)</td>
<td>0/8 (0)</td>
</tr>
<tr>
<td>PANC</td>
<td>0/1 (0)</td>
<td>2/4 (50)</td>
<td>2/11 (18.2)</td>
<td>3/17 (17.6)</td>
<td>0/32 (0)</td>
<td>0/30 (0)</td>
<td>0/11 (0)</td>
</tr>
<tr>
<td>Colon</td>
<td>1/7 (14.3)</td>
<td>3/14 (21.4)</td>
<td>3/19 (16)</td>
<td>4/40 (10)</td>
<td>1/54 (2)</td>
<td>1/68 (1.5)</td>
<td>0/19 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>4/13 (31)</td>
<td>5/24 (21)</td>
<td>6/50 (12)</td>
<td>16/95 (17)</td>
<td>6/132 (5)</td>
<td>2/169 (1)</td>
<td>1/43 (2)</td>
</tr>
</tbody>
</table>

Deaths/number per group (percentage of deaths).
Serum albumin categories were defined as follows: 1, 1.75 g/dL; 2, 1.76 to 2.25 g/dL; 3, 2.26 to 2.75 g/dL; 4, 2.76 to 3.25 g/dL; 5, 3.26 to 3.75 g/dL; 6, 3.76 to 4.25 g/dL; 7, >4.25 g/dL.
ESO, esophagus; STOM, stomach; PANC, pancreas.
Preoperative albumin and surgical site identify surgical risk for major postoperative complications
KA Kudsk, EA Tolley, RC DeWitt, PG Janu, AP Blackwell, S Yeary and BK King
JPEN J Parenter Enteral Nutr 2003 27: 1
### Sarcopenia

#### Table 1: Examples of SMI & BMI findings from the analysis of CT images from 1476 patients with solid tumours of the respiratory or gastrointestinal tracts

<table>
<thead>
<tr>
<th>Subject</th>
<th>SMI (skeletal mass index)</th>
<th>BMI (body mass index)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>29.8 cm²/m²</td>
<td>40.2 kg/m²</td>
<td>Huge variation in BMI with similar SMI</td>
</tr>
<tr>
<td>B2</td>
<td>29.8 cm²/m²</td>
<td>28.1 kg/m²</td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>29.7 cm²/m²</td>
<td>15.3 kg/m²</td>
<td></td>
</tr>
</tbody>
</table>

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Nutrition in oncology
## Cancer treatment toxicity

### Table 2: Association between sarcopenia incidence of CTT and time to tumour progression (TTP) receiving capecitabine treatment in metastatic breast cancer patients

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Percentage (%)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of sarcopenia</td>
<td>Approx 25% of total</td>
<td>Observed in normal weight, overweight &amp; obese patients</td>
</tr>
<tr>
<td>Cancer treatment toxicity (CTT)</td>
<td>50% in sarcopenic group, 20% in non-sarcopenic group</td>
<td>(P = 0.03)</td>
</tr>
<tr>
<td>Time to tumour progression (TTP)</td>
<td>101.4 days in sarcopenic group, 173.3 days in non-sarcopenic group</td>
<td>(P = 0.05)</td>
</tr>
</tbody>
</table>

### Incidence of dose-limiting toxicity is increased in sarcopenic patients:

- Colorectal: 5FU \(p = 0.001\)
- Breast: Capecitabine \(p = 0.039\)
- Breast: Adjuvant FEC \(p = 0.03\)
- Lung: platinum regimen \(p = 0.000\)
- Renal cell: Sorafenib \(p = 0.04\)
Table 4. Key Recommendations for Clinical Practice.

- Patients with upper gastrointestinal (UGI) cancer should undergo nutrition screening and, where found to be at risk, assessed by a dietitian using a validated tool on admission to the hospital.
- Preoperative nutrition support is required only when malnutrition is identified or intake is likely to be greatly reduced.
- Oral or enteral nutrition is recommended to commence within 24 hours of UGI surgery. Parenteral nutrition should be used only when the enteral route is not accessible or requirements are not able to be met by the enteral route alone.
- Nutrition support has a very limited role to play in the patient with UGI cancer who is palliative.
- The patient with UGI cancer should have access to a multidisciplinary health team.
• Energy dense and protein rich food or beverages
  • Milkshakes, smoothies
• Adequate chewing, slowly eating
• Frequent meals
• Soft/pureed/blenderized/liquid meals
  • Increase the volume for adequate intake!
• Meat substitutes
  • Eggs, boneless fish, tofu, cheese,…. 
Dietician-delivered intensive nutritional support is associated with a decrease in severe postoperative complications after surgery in patients with esophageal cancer.

**Oncology:** dietary coaching (every one or 2 W) during neoadjuvant therapy (2 M chemotherapy or a 5,5 W combination of chemo- and radiotherapy)

- **Surgery:** dietary coaching (every 2 W) during diagnostic phase
- **Surgery:** dietary coaching (every 2 W) prior to surgery (during recovery from neoadjuvant therapy)
- **Surgery:** dietary coaching (twice a W) in hospital after surgery
  - *Depending on postoperative complications*
- **Surgery:** after discharge after curative surgery: dietary coaching (every 2 W; when the patient is stable every 3 M until 12 M after surgery; if applicable: before & after adjuvant therapy)

**Oncology:** dietary coaching (every one or 2 W) during adjuvant therapy (chemotherapy or a combination of chemo- and radiotherapy)

- **Until 12 M after surgery**
- **Until 12 M after surgery**
- **When required**

**Fig. 1** Logistics of the intensive nutritional support by the dietician. W, week; M, month.
### Immunonutrition

**ESPEN Guidelines on Enteral Nutrition: Surgery including Organ Transplantation**

<table>
<thead>
<tr>
<th>Type of formula</th>
<th>In most patients a standard whole protein formula is appropriate.</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use EN preferably with immuno-modulating substrates (arginine, ω-3 fatty acids and nucleotides) perioperatively independent of the nutritional risk for those patients</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>• undergoing major neck surgery for cancer (laryngectomy, pharyngectomy)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• undergoing major abdominal cancer surgery (oesophagectomy, gastrectomy, and pancreatoduodenectomy)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• after severe trauma.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Whenever possible start these formulae 5–7 days before surgery and continue postoperatively for 5 to 7 days after uncomplicated surgery.</td>
<td>C</td>
</tr>
</tbody>
</table>
A. Patients undergoing elective gastrointestinal (GI) surgery

1. Moderately or severely malnourished patients (albumin < 3.5 g/dL) undergoing major elective upper GI procedures on the esophagus, stomach, pancreas (with or without duodenum), and hepatobiliary tree; the greatest benefit will be achieved in patients who are malnourished preoperatively.
NCP Preop

- Nasogastric feeding tube
- (Surgical/laparascopic/endoscopic) jejunostomy
- PEG?
Esophagectomy in patients with prior percutaneous endoscopic gastrostomy tube placement.

Wright GP¹, Foster SM², Chung MH³.

Author information

Abstract

BACKGROUND: The impact of preoperative percutaneous endoscopic gastrostomy (PEG) tube placement in patients undergoing esophagectomy is uncertain.

METHODS: A retrospective review was performed in consecutive patients who underwent esophagectomy. Patients were divided into groups based on whether or not they had preoperative PEG placement.

RESULTS: One hundred seventeen patients were studied, 102 without (PEG-) and 15 with PEG+ before PEG tube placement. The overall morbidity and mortality rates were 38% and 3%, respectively. The use of a gastric conduit was similar between groups (94% PEG- vs 87% PEG+, \( P = .27 \)), and the presence of a PEG before PEG tube placement was not prohibitive in any case. Anastomotic leak rates were similar between groups (11% PEG- vs 15% PEG+, \( P = .65 \)), and there were no leaks from previous PEG sites.

CONCLUSION: It appears that preoperative PEG tube placement has no adverse effect on the performance of esophagectomy and may be considered in highly selected patients with poor nutritional status.
• 50 patients: oropharyngeal (ENT) and esophageal malignancies
• Need for EN
• 40 pull-through technique/10 direct insertion
• Cytological assessment (brush cytology) at insertion site immediately after placement and after 3-6 months
• With pull technique:
  • 22.5% malignant cells after insertion
  • 9.4% after 3-6 months only in patients with esophageal cancer
• Use direct access
Esophagectomy

Vagal sparing  Colon interposition  Gastric pull up
NCP postop

• Danger anastomotic leak
  • NG tube placed at surgery for decompression
    • Protects esophagogastric anastomosis 5-7 days

• Needle catheter jejunalostomy or larger bore jejunalostomy
  • Also useful after discharge to prevent further weight loss in the adaptation period (nocturnally) and during adjuvant therapy
  • Or when stricture development at the anastomosis site later
Jejunostomy

Jejunal loop sutured to abdominal wall to prevent twisting.
Type of feeding

• Enteral feeding (evt. immunonutrition) can start 12 hours after placement
  • Start at 20 ml/h and advance by 10 ml/h every 12 hours until reaching goal
  • Mostly 1 Kcal/ml
• Flush frequently (ever six hours!)
• Avoid high fibre formula and medications (obstruction of the tube)
• Consider semi-elemental tube feeding with small diameters
Post-oesophagectomy early enteral nutrition via a needle catheter jejunostomy: 8-year experience at a specialist unit

Aoife M. Ryan*, Suzanne P. Rowley, Laura A. Healy, Philomena M. Flood, Narayanasamy Ravi, John V. Reynolds

<table>
<thead>
<tr>
<th>Table 2: Nutrition support post-operatively in 205 oesophagectomy cases.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days on nutrition support</td>
</tr>
<tr>
<td>Days on full NS</td>
</tr>
<tr>
<td>Days on part NS</td>
</tr>
<tr>
<td>Days fasting</td>
</tr>
<tr>
<td>Days to first BM</td>
</tr>
<tr>
<td>Peri-op weight loss (kg)</td>
</tr>
<tr>
<td>Peri-op weight loss (P25–P75)</td>
</tr>
<tr>
<td>Mean weight on discharge (kg)</td>
</tr>
<tr>
<td>Mean BMI on discharge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight loss classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-significant weight loss</td>
</tr>
<tr>
<td>Significant weight loss</td>
</tr>
<tr>
<td>Severe weight loss</td>
</tr>
</tbody>
</table>

| Enteral feeding | 189 (92%) |
| Parenteral feeding | 16 (8%) |
| Intravenous fluids only | 0 (0%) |

NS = nutrition support; BM = bowel motion.

<table>
<thead>
<tr>
<th>Table 3: Biochemical, gastrointestinal and mechanical complications of jejunostomy feeding in 205 cases.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrolyte supplementation</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Phosphate</td>
</tr>
<tr>
<td>Potassium</td>
</tr>
<tr>
<td>Sodium</td>
</tr>
<tr>
<td>Magnesium</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gastrointestinal complications</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipation</td>
<td>18% (38)</td>
</tr>
<tr>
<td>Laxative requirement</td>
<td>26% (54)</td>
</tr>
<tr>
<td>Diarrhoea &gt;3/day</td>
<td>11% (22)</td>
</tr>
<tr>
<td>Diarrhoea &lt;3/day</td>
<td>11% (22)</td>
</tr>
<tr>
<td>Nausea</td>
<td>16% (33)</td>
</tr>
<tr>
<td>Cramps</td>
<td>6% (13)</td>
</tr>
<tr>
<td>Abdominal distension</td>
<td>4% (9)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>3% (7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical complications</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube dislodged</td>
<td>2.4% (5)</td>
</tr>
<tr>
<td>Tube occlusion</td>
<td>3% (6)</td>
</tr>
<tr>
<td>Tube split</td>
<td>0.5% (1)</td>
</tr>
<tr>
<td>Infection at entry site</td>
<td>1.4% (3)</td>
</tr>
<tr>
<td>Site oozing</td>
<td>1.4% (3)</td>
</tr>
<tr>
<td>Bowel obstruction/volvulus</td>
<td>1.4% (3)</td>
</tr>
</tbody>
</table>
### Table 4. Jejunostomy complications

<table>
<thead>
<tr>
<th>Patient</th>
<th>Days to oral intake</th>
<th>Days to jejunostomy tube complication</th>
<th>Complication</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>7</td>
<td>Jejunal ischemia</td>
<td>Localized resection</td>
</tr>
<tr>
<td>2</td>
<td>62</td>
<td>8</td>
<td>Bowel obstruction and perforated jejunum</td>
<td>Localized resection</td>
</tr>
<tr>
<td>3</td>
<td>NA*</td>
<td>13</td>
<td>Small bowel leak and localized abscess</td>
<td>Repair of jejunum</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>10</td>
<td>Jejunal site infection</td>
<td>Tube removed</td>
</tr>
<tr>
<td>5</td>
<td>52</td>
<td>49</td>
<td>Jejunal site infection</td>
<td>Tube removed</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>6</td>
<td>Jejunal site infection</td>
<td>Antibiotics</td>
</tr>
</tbody>
</table>

NA = not applicable.

*Patient died on postoperative day 27 without having resumed oral intake.
NCP Postop

- Transition to oral intake (if no complications)
  - Water from D5 (?)
  - Quick progression from clear liquids to soft diet to solid food (= patient specific)
  - Small frequent meals (6-8 per day)
    - Prevents dumping syndrome (abdominal pain, nausea, dizziness, diarrhoea)
  - Later gradually progress to normal diet and 3 meals/d (Patient specific + may take several months)
NCP postop

- TPN
  - First week postop (?)
  - Prolonged ileus
  - Intolerance enteral feeding
  - No jejunostomy present
Postoperative problems

- Swallowing problems
- Reflux
- Dumping syndrome (nausea, diarrhoea, abdominal cramping,…)
- Excess gas
- Rebound hypoglycaemia
- Suboptimal intake-weight loss
- Delayed gastric emptying


*Prevention of delayed gastric emptying after esophagectomy: a single center's experience with botulinum toxin.*

Martin JT¹, Federico JA, McKelvey AA, Kent MS, Fabian T.
Problem solving

- Limit fluids during meals
- Avoid alcohol, caffeine (reflux)
- Sit upright 30-60 minutes after eating and two hours before bedtime
  - Bed: upper body 30°
  - Last snack at least two to three hours before going to bed
- Sweets at the end of a meal
- Trial and error
Qol afterwards

- Potentially influenced by some physical (nutritional related) symptoms
  - Dysphagia
  - Loss of taste
  - Further weight loss
  - Early satiety
  - Reflux
  - Blown up feeling
  - Food not going down
  - Chest pain
Quality of Life After Transhiatal Compared With Extended Transthoracic Resection for Adenocarcinoma of the Esophagus

Physical functioning 9 months to one year to baseline
Esophageal cancer

Surgery not possible
NCP

- Screening/assessment
- Dietary counseling
- NST
- Nutrition Care plan
- Stenting
- Gastrostomy-jejunostomy
- TPN
Conclusions

- Multiple reasons and time points for developing nutrition risk or undernutrition.
- Importance of (preoperative) nutritional screening and assessment.
- Develop a individual NCP certainly if at risk or undernourished.
Conclusions

• Use preferable oral/enteral nutrition and if not accessible or requirements not met: TPN

• Access to a multidisciplinary team
  • NST

• Patients may need several months to return to their baseline preoperative state.
Thank you for your attention.