Malabsorption syndrome following surgical resection for oesophageal and gastric carcinoma - should patients be routinely screened?

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Resections for oesophageal and gastric cancer have a major impact on nutritional status

- 64% of patients lost >10% of pre-op BMI
- 20% of patients lost >20% of pre-op BMI 6 months after oesophagectomy (Lagergren et al 2007)
- 69% of patients lost >10% of pre-op weight following gastrectomy (Ryan et al 2007)

- Post-operative malnutrition is a common problem with multifactorial causes
- Symptoms of malabsorption not routinely considered
- Limited research and publications
Malabsorption - global term to describe all aspects of impairment of digestion and absorption (WGO)

Symptoms:
- Chronic diarrhoea
- Steatorrhoea: pale, foul-smelling stools, difficult to flush
- Bloating, excessive flatus, abdominal cramps
- Weight loss, tiredness, fatigue
- Micronutrient deficiencies

Investigations
1. Blood tests
2. Stool studies - culture, faecal fat, faecal elastase
3. Interventional studies – imaging and endoscopy
4. Other - Hydrogen breath test, SeHCAT
# Oesophagectomy & Gastrectomy

## Mechanisms leading to malabsorption

<table>
<thead>
<tr>
<th>Mechanism</th>
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<tbody>
<tr>
<td>Surgical resection - structural changes</td>
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<tr>
<td>Inadequate gastric mixing, rapid gastric emptying, or both</td>
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<tr>
<td>Abnormal motility</td>
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<td>Insufficient pancreatic enzyme production/activity</td>
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<td>Gastrointestinal pH, Bacterial overgrowth</td>
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Aim: To retrospectively explore the problem of post-operative malabsorption in a tertiary referral centre for oesophageal and gastric cancer surgery.

- Retrospective analysis of 62 patients attending OPD after oesophagectomy or gastrectomy
- Regular follow-up by senior surgeon and specialist dietitian
- Persistent weight loss, difficulty gaining weight
- Malabsorptive symptoms noted and faecal elastase-1 and hydrogen breath tests ordered
- Data collected from dietetic notes, medical records and cancer database
Patients treated with curative intent

Median time from initial surgery to OPD presentation was 6 months (range 0-5 years)
1. Faecal elastase-1 tests n=47 (76%)

<table>
<thead>
<tr>
<th>Result</th>
<th>Range μg/g stool</th>
<th>No. of cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>200-500</td>
<td>33 (70)</td>
</tr>
<tr>
<td>Mild-moderate insufficiency</td>
<td>100-200</td>
<td>8 (17)</td>
</tr>
<tr>
<td>Severe insufficiency</td>
<td>&lt;100</td>
<td>6 (13)</td>
</tr>
</tbody>
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15.8% post oesophagectomy patients had FE-1 <200 μg/g (Huddy et al 2012)
## Results

### Small intestinal bacterial overgrowth

2. Hydrogen breath tests n=35  (56%)

<table>
<thead>
<tr>
<th>Result</th>
<th>No. of patients (%)</th>
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<tbody>
<tr>
<td>Positive</td>
<td>26 (74%)</td>
</tr>
<tr>
<td>Glucose</td>
<td>17</td>
</tr>
<tr>
<td>Fructose</td>
<td>23</td>
</tr>
<tr>
<td>Borderline positive</td>
<td>3</td>
</tr>
<tr>
<td>Negative</td>
<td>3</td>
</tr>
<tr>
<td>Inconclusive</td>
<td>3</td>
</tr>
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Discussion

- Results confirm the observation that post-op malabsorption occurs
- Patients with persistent weight loss and difficulty gaining weight should be screened for symptoms of malabsorption
- Useful tests include faecal elastase test and hydrogen breath test
- Symptom based approach is vital
- Multi-factorial mechanisms involved
Future research

- Further investigation required in this area

- Prospective interdisciplinary study now established:
  - Faecal Elastase test
  - Coeliac serology (serum Ttg, IgA)
  - Thyroid function tests
  - Hydrogen breath tests
  - SecHAT scan (when indicated)
  - Standardised nutritional assessment including micronutrient serum levels
  - GI symptom questionnaire

Cancer survivorship and QOL!
Thank You