Review of the risk of developing re-feeding syndrome amongst hospice in-patients with cancer

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Keywords:
- Re-feeding syndrome
- Cancer
- Hypophosphataemia
- Malnourishment
- Weight loss

Introduction:
Re-feeding syndrome is a well-recognised, but often under-appreciated syndrome that occurs when food/nourishment is rapidly introduced to patients who have been malnourished for as little as 5-10 days. It is associated with fluid and electrolyte shifts, hypophosphataemia and potentially fatal complications if unrecognised.

Cancer patients may be at risk following successful treatment of reversible causes of malnourishment e.g.:
- Negligible food intake for more than 5 days e.g. anorexia, depression
- Reduced absorption of nutrition e.g. secondary to nausea, vomiting, bowel obstruction, diarrhoea
- Increased metabolic demands e.g. cancer, surgery, infection, sepsis

The National Institute for Health and Clinical Excellence (NICE) recommend that “all hospital inpatients on admission and all out-patients at their first clinic appointment should be screened for malnutrition. Screening should be repeated weekly for inpatients when there is a clinical concern for outpatients”.

Aim:
To assess the proportion of patients with cancer admitted to the hospice who are potentially at risk of developing re-feeding syndrome and enable better identification, prevention and management.

Objectives:
- Raise awareness amongst staff.
- Develop screening tool for in-patients if appropriate.
- Develop guidelines, if appropriate for its prevention and management within the hospice.

Method:
Retrospective review of case notes for all inpatient admissions with a primary diagnosis of cancer during January and February 2014. Proforma included:
- Demographics - Age, sex
- Diagnosis and date of diagnosis
- Treatment history - Surgery, chemotherapy, radiotherapy
- Date and reason for admission
- Past medical history
- Drug history
- History of alcohol abuse
- Diet history
- Nutritional intake
- Psychological state
- Vomiting, bowel obstruction, diarrhoea
- Fluid and electrolyte imbalances
- Nutritional assessment

Results:
127 different patients admitted
Total of 146 admissions
(31 patient admitted 1 times, 21 patients admitted 2 times, 14 patients admitted 3 times)
94 patients (110 admissions) had cancer = 74%

Reasons for admission included:

<table>
<thead>
<tr>
<th>Reason for admission</th>
<th>Number of patients</th>
</tr>
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<tbody>
<tr>
<td>Symptoms control</td>
<td>51</td>
</tr>
<tr>
<td>End of life care</td>
<td>28</td>
</tr>
<tr>
<td>Symptoms control / end of life care</td>
<td>7</td>
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<tr>
<td>Elective cases</td>
<td>20</td>
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<tr>
<td>Procedures</td>
<td>13</td>
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<tr>
<td>Blood transfusion</td>
<td>4</td>
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<tr>
<td>Nerve block</td>
<td>2</td>
</tr>
<tr>
<td>Bisphosphonate infusion</td>
<td>1</td>
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<tr>
<td>Nipple</td>
<td>4</td>
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</tbody>
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33 patients (36 admissions) had other diagnoses = 26%

Criteria for the guidelines of the National Institute for Health and Clinical Excellence (NICE) for identifying patients at high risk of re-feeding problems (2000)

- Patient has more than 1 of the following:
  - Body mass index (kg/m²) <16
  - Unintentional weight loss >15% within the last 3-6months
  - Little or no nutritional intake for >3days
  - Low levels of potassium, phosphate, or magnesium before feeding
- Or the patient has 2 or more of the following:
  - Body Mass Index of <18.5
  - Unintentional weight loss > 10% in the last 3-6 months
  - Little or no nutritional intake for > 5 days
  - History of alcohol misuse or drugs, including insulin, chemotherapy, antidepressants or diuretics.

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Results / Discussion:
A significant number were cachectic with poor appetite and weight loss. However this appeared to occur as part of the cancer process rather than an acute / reversible problem and nutritional intake did not improve prior to death. 4 patients (out of 51) were identified by the proforma as at risk of re-feeding syndrome.

Case example:
80 year old male with metastatic prostate cancer was admitted from home on 17/1/14 generally unwell.

Past medical history: Chronic lymphocytic leukaemia, chronic kidney disease and type 2 diabetes. Recent hospital admission with urosepsis and significant anaemia requiring a blood transfusion. Recent endoscopy performed due to dysphagia revealed gastritis, delayed swallow with dysmotility and reflux.

Relevant drug history: Dopiates, Insulin, Dexamethasone 2mg OD, proton pump inhibitor.

Diet: Solids and liquids regurgitate, retching, dry mouth, altered taste, stopped insulin last 24 hours for fear of hypoglycaemic episodes, significant weight loss.

Bowel: 1 day history of loose stools, clinical suspicion of overflow diarrhoea following long-standing constipation.

Bloods: 3/2/14: AB 29, CRP 229, phosphate 0.84, repeated on 15/1 when phosphate low at 0.61.

Management: Antibiotics for unresolved urosepsis, fluconazole for oral candidiasis, high dose proton pump inhibitor, diaspam and prokinetics for swallow.

Outcome: Significantly improved oral intake, discharged home 29/1/14.

Unfortunately there was poor awareness among doctors. The syndrome was not once documented as a concern, including one case when phosphate level became low. Nutritional histories were limited and weight loss often not quantified.

Conclusions:
Re-feeding syndrome was a concern in approximately 8% of cancer patients admitted to the hospice for symptom control. Unfortunately, due to lack of awareness, these cases may be missed. Improving doctor education will encourage thorough history taking around nutritional intake and weight change over time and prompt on-going electrolyte monitoring if appropriate.

References:
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