Guidelines for the Medical Management of Malignant Bowel Obstruction

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Summary of Main Recommendations

Introduction
Malignant bowel obstruction is a recognized complication of advanced pelvic or abdominal malignancy. 1 Common symptoms associated with malignant bowel obstruction include abdominal pain, abdominal colic, nausea and vomiting. 3 The evidence base for the management of malignant bowel obstruction is weak. An individualised approach to management is recommended for each patient and specialist palliative care advice should be sought.

Assessment
- The diagnosis is made clinically through history and examination. 6 [Level 4]
- This may be confirmed with imaging (abdominal X-ray or CT scan). 6 [Level 4]

Symptom Control

Pain
- Opioid analgesia should be titrated to control continuous abdominal pain. 7 [Level 4]
- Colic should be managed with the reduction in dose or discontinuation of prokinetic drugs followed by the commencement of antispasmodic medications. 9,10 [Level 4]

Reduction of secretions
- Patients experiencing large volume vomiting should be prescribed anti-secretory treatment. 11 [Level 1-]
- Octreotide is the recommended first line anti-secretory medication. 11,12,13,14 [Level 1-]

Reduction of nausea and vomiting
- Anti-emetics should be administered via the subcutaneous route. 9 [Level 4]
- Prokinetics are not advised if the diagnosis of complete vs partial bowel obstruction is uncertain. 8 [Level 4]

Corticosteroids
- A five day trial of Dexamethasone 8mg daily subcutaneously should be considered in all patients. 17 [Level 1-]

Laxatives
- The use of stimulant laxatives should be avoided. The use of stool softeners may be appropriate. 8 [Level 4]

Interventions

Medication Delivery
- Medication should be delivered via the subcutaneous route due to potential problems with absorption. 7 [Level 4]

Venting Gastrostomies
- Venting gastrostomies or jejunostomies should be considered for patients with malignant bowel obstruction who have a prognosis of greater than 2 weeks. 19 [Level 4]
- Venting gastrostomies have been shown to be cost effective with low morbidity and mortality. 22 [Level 3]

Nasogastric Tubes
- A wide bore nasogastric tube should be considered for patients with upper gastrointestinal obstruction or large volume vomiting. 23 [Level 4]
Section 1: Introduction

- Malignant bowel obstruction is a recognised complication of advanced pelvic or abdominal malignancy, frequently occurring in the advanced stages of illness.\textsuperscript{1} The suggested incidence of bowel obstruction in ovarian carcinoma ranges from 5.5% to 42% and in colorectal cancer from 4.4% to 24%.\textsuperscript{2}

- The diagnosis of bowel obstruction is made via history, physical examination and radiological examination although in some cases radiological examination may not be appropriate.\textsuperscript{3}

- These guidelines suggest a definition of malignant bowel obstruction as follows (adapted from Anthony et al.\textsuperscript{3}):
  - Clinical evidence of bowel obstruction (via history / physical examination / radiological examination)
  - Intra-abdominal primary cancer with incurable disease
  - Non intra-abdominal primary cancer with peritoneal disease

- Symptoms commonly associated with malignant bowel obstruction include:\textsuperscript{3}
  - Abdominal pain
  - Abdominal colic
  - Nausea
  - Vomiting
  - Large volume vomit / excessive gastrointestinal secretions

- Where relevant in these guidelines we will distinguish between complete bowel obstruction, partial bowel obstruction and malignant bowel dysfunction. Malignant bowel dysfunction is defined as: “symptoms suggestive of malignant bowel obstruction without radiographic evidence”.\textsuperscript{4}

- The evidence base for the management of malignant bowel obstruction is limited. The management of patients with malignant bowel obstruction should be individualised taking into account the underlying pathology, clinical symptoms and results of investigations.

Section 2: Scope and Purpose

- This guideline is aimed at practitioners in specialist palliative care including doctors, nurses and pharmacists. The guideline may also be of benefit to generalist providers of palliative care. However due to the complexity of the clinical assessment and management of malignant bowel obstruction we would recommend that practitioners seek specialist palliative care advice for all patients.

- The aims of the guideline are to:
  - Improve the medical management of patients with malignant bowel obstruction.
  - Help control the symptoms of bowel obstruction in these patients.

- This guideline does not cover the surgical management of malignant bowel obstruction. This may include a defunctioning stoma, bypass, resection or stenting. It is
expected that the appropriateness of a surgical opinion would be considered in all patients. Similarly an oncological opinion may also be appropriate depending on individual circumstances and mechanism of obstruction.

Table 1 summarises the scope and purpose of this guideline.

<table>
<thead>
<tr>
<th>Population</th>
<th>Adults with incurable cancer with malignant bowel obstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Populations not covered</td>
<td>Under 18 years of age, potentially curable disease</td>
</tr>
<tr>
<td>Healthcare setting</td>
<td>People in their usual place of residence, Primary and community care, Secondary care, Hospice care</td>
</tr>
<tr>
<td>Topics</td>
<td>Assessment of patients with suspected malignant bowel obstruction, The medical management of malignant bowel obstruction, The use of venting gastrostomies or nasogastric tubes in the management of patients with malignant bowel obstruction, Consideration of advanced care planning in patients with malignant bowel obstruction</td>
</tr>
<tr>
<td>Topics not covered</td>
<td>Surgical management of malignant bowel obstruction, Oncological management of malignant bowel obstruction</td>
</tr>
</tbody>
</table>

Section 3: Methods

The guideline is based on the AGREE II criteria and can be found in detail in the Cheshire and Merseyside Palliative and End of Life Care Network Audit Group Guideline Development Manual.5

3.1 Clinical Questions & Interventions

Clinical questions were derived from the previous guidance published in 2006 and reviewed in 2009. These were then refined by the Guideline Development Group which has authored this guideline. The clinical questions used to guide the literature review in PICO (Patient, Intervention, Control, and Outcome) format are:

In advanced cancer patients with malignant bowel obstruction:

1. What should be the medical management of?
   - Colic
- Pain
- Nausea and vomiting
- Constipation
- Secretions
- Tumour oedema

2. What is the role for nasogastric tubes and venting gastrostomies?

3.1.1 Outcomes
   - To improve symptom control in patients with malignant bowel obstruction.

3.2 Literature Search
   - Systematic electronic database searches were done to find potentially relevant articles. Ovid MEDLINE, EMBASE and Cochrane databases were searched in March 2014. A full explanation of the search strategy, results and appraisal of evidence can be found in Appendix 1. Grading of the level of evidence and recommendations follows the Cheshire and Merseyside Palliative and End of Life Care Network Audit Group Guideline Development Manual and uses SIGN criteria.\(^5\)

Section 4: Guideline Recommendations

4.1 Assessment
   - The pattern of presenting symptoms is usually determined by the level of obstruction.

     With **proximal** obstruction (stomach, duodenum, pancreas, jejunum), vomiting develops early and can be frequent and large in volume.\(^6\) [Level 4] Distension may be minimal.

     In **distal** obstruction (large bowel), distension is more prominent and other symptoms develop progressively.\(^6\) [Level 4]

     Nausea, abdominal pain, colic and dry mouth may be present regardless of the level of obstruction.\(^6\) [Level 4]
     The diagnosis is established on clinical grounds and may be confirmed with imaging (abdominal X-ray or CT scan).\(^6\) [Level 4]

4.2 Symptom control
   - The indications, dosage and administration information for the medications cited in this section are presented in Table 2. (page 7)

4.2.1 Pain
   - Opioid analgesia should be titrated to control continuous abdominal pain providing these are effective and not causing significant side effects. A syringe driver is likely to be the most reliable route of administration, although transdermal fentanyl may also be considered.\(^7\) [Level 4]
As required medication should be prescribed for breakthrough pain and may include oral / subcutaneous opioid analgesia or immediate release fentanyl preparations (depending on the background opioid dose). [Level 4]

Colic should initially be managed with the reduction or discontinuation of prokinetic drugs and stimulant laxatives. This can be followed by the addition of antispasmodic medication e.g. hyoscine butylbromide or glycopyrronium.

4.2.2 Reduction of secretions

All patients who experience vomiting should be prescribed anti-secretory treatment. [Level 1-]. Octreotide is effective at reducing the number of vomits and nasogastric tube aspirate volume. It may also avoid placement of a nasogastric tube. It should be considered as the first choice anti-secretory agent. [Level 1-].

Hyoscine butylbromide, ranitidine and glycopyrronium are also effective at reducing secretion volume and may be considered as second line choices.

4.2.3 Reduction of nausea and vomiting

Anti-emetics should be administered via the subcutaneous route. A trial of prokinetic medication may be appropriate in partial bowel obstruction or malignant bowel dysfunction but the patient should be closely monitored for signs of worsening colic. [Level 4]

It can be difficult to distinguish between partial and complete bowel obstruction and therefore the use of prokinetics is not advised if the diagnosis is uncertain.

One approach to anti-emetic prescribing is suggested below. However clinicians should consider the individual patient’s pathology and symptoms.

Partial bowel obstruction
- Metoclopramide. Recent guidance on the use of metoclopramide can be accessed here: http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON300404

Complete bowel obstruction OR partial bowel obstruction with colic
- Cyclizine and/or haloperidol
- Levomepromazine

4.2.4 Corticosteroids

There is a trend for evidence that corticosteroids may bring about the resolution of bowel obstruction. It is worth considering a trial of dexamethasone 8mg subcutaneously daily for five days. [Level 1-] Corticosteroids do not affect the length of survival. [Level 1+]
4.2.5 Laxatives

- It may be appropriate to consider a stool softener in patients with partial bowel obstruction or malignant bowel dysfunction. The use of lactulose or stimulant laxatives should be avoided in complete bowel obstruction. [8] [Level 4]

4.2.6 Venting gastrostomies or jejunostomies

- Venting gastrostomies or jejunostomies should be considered for patients with unresolved, symptomatic, malignant bowel obstruction dependent on patient circumstance, clinical condition and wishes. [Level 4] They can be very effective at relieving nausea and vomiting. [19] [Level 2] They are better tolerated than nasogastric tubes. [20] [Level 3] Insertion may enable patients to eat and drink and to be cared for at home. [19, 21] [Level 2] Insertion is a cost effective procedure with low morbidity and mortality. [22] [Level 3]

4.2.7 Use of a nasogastric tube

- A wide bore nasogastric tube should be considered for patients with upper gastrointestinal obstruction and / or intractable large volume vomiting. [23] [Level 4]

- Individual units should consider having written information regarding the use and purpose of nasogastric tubes for patients. [8] [Level 4]

4.2.8 Advance care planning

- As complete bowel obstruction is associated with a poor prognosis, discussion with the patient and carers regarding priorities at the end of life, including preferred place of care, should be considered. [8] [Level 4]

4.2.9 Clinically assisted hydration and nutrition

- The appropriateness of the use of clinically assisted hydration and nutrition should be considered in each patient. However there is little evidence in this area. [8] [Level 4]
### Table 2 Medications for Symptom Control in Malignant Bowel Obstruction

Dose adjustments may need to be made depending on renal and hepatic function.

<table>
<thead>
<tr>
<th>Indication(s)</th>
<th>Drug Name</th>
<th>Dose (over 24 hrs via CSCI unless otherwise stated)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relief of constant pain</td>
<td>Opioid via CSCI / 24 hours or transdermal Fentanyl patch[^7] [Level 4]</td>
<td>Dependent on previous dose.</td>
<td>Absorption of oral formulation via gut may have been impaired when converting from oral to CSCI. Consider adjusting the dose accordingly</td>
</tr>
<tr>
<td>Relief of colic</td>
<td>Hyoscine butylbromide[^9,10] [Level 3]</td>
<td>60mg-240mg</td>
<td>Do not combine with cyclizine in CSCI as can cause crystallisation.</td>
</tr>
<tr>
<td></td>
<td>Glycopyrronium[^9] [Level 3]</td>
<td>600micrograms-2.4mg</td>
<td>Does not crystallise</td>
</tr>
<tr>
<td>Reduce volume of gastrointestinal secretions</td>
<td>Octreotide[^11,12,13,14] [Level 1]</td>
<td>300micrograms-600 micrograms [Level 1] 600micrograms-1mg [Level 3]</td>
<td>Should be considered first line.</td>
</tr>
<tr>
<td></td>
<td>Hyoscine butylbromide[^11,12] [Level 1]</td>
<td>60mg-240mg</td>
<td>Do not combine with cyclizine in CSCI as can cause crystallisation.</td>
</tr>
<tr>
<td></td>
<td>Ranitidine[^15] [Level 2+]</td>
<td>100mg-200mg</td>
<td>Does not crystallise</td>
</tr>
<tr>
<td></td>
<td>Glycopyrronium[^9] [Level 3]</td>
<td>600 micrograms-2.4mg</td>
<td>Does not crystallise</td>
</tr>
<tr>
<td>Reduce tumour oedema</td>
<td>Dexamethasone[^17,18] [Level 1-]</td>
<td>8mg subcutaneously od or 4mg subcutaneously bd</td>
<td>Given as single dose or divided into 2 doses.</td>
</tr>
<tr>
<td>Reduce nausea and vomiting</td>
<td>Cyclizine[^9] [Level 4]</td>
<td>150mg</td>
<td>Do not combine with hyoscine butylbromide in CSCI as can cause crystallisation.</td>
</tr>
<tr>
<td></td>
<td>Haloperidol[^9] [Level 4]</td>
<td>1.5mg-5mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Levomepromazine[^9] [Level 4]</td>
<td>6.25mg-25mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metoclopramide[^9] [Level 4]</td>
<td>30mg-90mg</td>
<td>Contraindicated in complete bowel obstruction. Dose may be increased to 120mg/24 hours. Monitor for increased abdominal colic.</td>
</tr>
<tr>
<td></td>
<td>Ondansetron[^9] [Level 4]</td>
<td>8mg-32mg</td>
<td></td>
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</tbody>
</table>
Section 5: Standards

1. A five day trial of corticosteroids should be administered unless contraindicated. [Grade A]

2. Octreotide should be prescribed for all patients experiencing vomiting. [Grade A]

3. Medication should be delivered by the subcutaneous route. [Grade D]

4. The multidisciplinary notes should record the presence and severity of abdominal colic. [Grade D]

5. The multidisciplinary notes should record the presence and severity of nausea. [Grade D]

6. The multidisciplinary notes should record the presence and severity of vomiting. [Grade D]
Applications and Implications

Currently the daily cost of octreotide for subcutaneous infusion (£65.10 for 500 micrograms), is between 10 and 40 times that of the daily cost of an antimuscarinic subcutaneous infusion (e.g. glycopyrronium, hyoscine hydrobromide and hyoscine butylbromide). However, the use of octreotide was shown to be more effective than antimuscarinics at reducing nausea, vomiting, the use of nasogastric tubes, intravenous fluids and hospital stay in patients with malignant bowel obstruction. The cost of the octreotide may be offset by these benefits although direct research into cost effectiveness is lacking.

Venting gastrostomy has also been shown to be effective in a cohort of patients with bowel obstruction at reducing symptoms of nausea, vomiting and pain and by reducing hospice and hospital stay. Cost comparison studies of care for patients receiving venting gastrostomies with those receiving medical management as recommended in these guidelines, has not been undertaken. However, studies in other countries have shown the procedure to be cost effective. The direct cost to inpatient specialist palliative care services is likely to be less with the procedure being undertaken in acute trusts. If the procedure enables the patient to return home then the ongoing cost of care of the gastrostomy site and supply of bags will predominantly be the responsibility of percutaneous endoscopic gastrostomy (PEG) services and primary care.

The audit results show that dexamethasone is not currently being considered in all cases of bowel obstruction. The implementation of these guidelines may increase resolution of bowel obstruction reducing length of inpatient stay and the use of other medications. No cost analysis has been undertaken.

Recommendations for future research and quality improvement

Strengthening of links between specialist palliative care and gastroenterology services for the assessment and provision of venting gastrostomies is recommended.

Evaluation of the resources and interventions to support people with malignant bowel obstruction to determine clinical and cost effectiveness

Education and training of palliative care professionals in order to implement these guidelines is essential. Cheshire and Merseyside Strategic Clinical Networks have resources to support education and implementation of clinical guidelines. These are available at www.cmscnsenate.nhs.uk.

Acknowledgments and Declarations of Interest

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**Review Date**

The guidelines will be reviewed three years after publication as outlined in the Cheshire and Merseyside Palliative and End of Life Care Network Audit Group Guideline Development Manual.5
References


15. Clark K, Lam L, Currow D. Reducing gastric secretions – a role for histamine 2 antagonists or proton pump inhibitors in malignant bowel obstruction? Support Care Cancer 2009; 17: 1463-1468. [Link]


Appendix 1: Systematic Review Summary Form

Guideline Title: Guidelines for the Medical Management of Malignant Bowel Obstruction
Reviewers: F Ahmad, C Jeffries, E Longford, AA Scott, G Holland, R Telfer, H Ferguson, J Carlson, S Fradsha

Clinical Questions: In advanced cancer patients with malignant bowel obstruction:
What should be the medical management of colic, pain, nausea and vomiting, constipation, secretions, tumour oedema?
What is the role for nasogastric tubes and venting gastrostomies?

Medical and EMBASE searched. Search terms:
‘cancer’ OR ‘malignancy’ OR ‘palliative’ OR ‘end of life’
AND ‘bowel obstruction’ OR ‘intestinal obstruction’
AND colic* OR pain OR nausea* OR vomit* OR constipat* OR secret* OR oedema/oedema* OR nasogastric/NG/Ryles tube OR gastrostomy

Records identified Medline (n = 899)
Records identified Cochrane database (n=1)
Records identified EMBASE (n = 2040)
Duplicates removed (n=998)
Records screened and excluded as not being relevant to the clinical questions (n = 1750)

Full-text articles assessed for eligibility (n = 192)

Studies included in final literature review (n = 44)

Full-text articles excluded, with reasons (n = 148)
45 – Review article
43 – Not relevant to clinical question
35 – Foreign language
13 – Low level of evidence
7 – Conference abstract
3 - Duplicates
2 - Unavailable

Clinical Questions:

What should be the medical management of colic, pain, nausea and vomiting, constipation, secretions, tumour oedema?
What is the role for nasogastric tubes and venting gastrostomies?