

Palliative Medicine

<http://pmj.sagepub.com>

The management of constipation in palliative care: clinical practice recommendations

PJ Larkin, NP Sykes, C Centeno, JE Ellershaw, F Elsner, B Eugene, JRG Gootjes, M Nabal, A Noguera, C Ripamonti, F Zucco, WWA Zuurmond and On behalf of The European Consensus Group on Constipation in Palliative Care

Palliat Med 2008; 22; 796

DOI: 10.1177/0269216308096908

The online version of this article can be found at:
<http://pmj.sagepub.com/cgi/content/abstract/22/7/796>

Published by:



<http://www.sagepublications.com>

Additional services and information for *Palliative Medicine* can be found at:

Email Alerts: <http://pmj.sagepub.com/cgi/alerts>

Subscriptions: <http://pmj.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.co.uk/journalsPermissions.nav>

Citations (this article cites 36 articles hosted on the SAGE Journals Online and HighWire Press platforms):
<http://pmj.sagepub.com/cgi/content/refs/22/7/796>

The management of constipation in palliative care: clinical practice recommendations

PJ Larkin Senior Lecturer in Nursing (Palliative Care), School of Nursing and Midwifery, Aras Moyola, The National University of Ireland, Galway, **NP Sykes** Medical Director and Consultant in Palliative Medicine, St Christopher's Hospice, London, **C Centeno** Consultant in Palliative Care, Clínica Universitaria, University of Navarra, Pamplona, **JE Ellershaw** Professor of Palliative Medicine, University of Liverpool, Liverpool; Director, Marie Curie Palliative Care Institute, Liverpool, **F Elsner** Assistant Professor and Assistant Medical Director, Department of Palliative Medicine, University Hospital Aachen, Aachen, **B Eugene** Palliative Care Nurse, Hospices Civils de Lyon, Lyon, **JRG Gootjes** Care Manager, Hospice Kuria, Amsterdam, **M Nabal** Consultant in Palliative Medicine, Palliative Care Supportive Team, Hospital Universitario Arnau de Vilanova, Lleida, **A Noguera** Clinical Research Fellow, Palliative Care Unit, Clínica Universitaria, University of Navarra, Pamplona, **C Ripamonti** Specialist in Oncology Medicine and Clinical Pharmacology, Rehabilitation and Palliative Care Operative Unit, IRCCS Foundation, National Cancer Institute of Milan, Milan, **F Zucco** Director of the Department of Anaesthesia, Hospice Garbagnate, Cure Palliative AO Salvini, Milan, **WWA Zuurmond** Professor of Palliative Care and Pain Relief, Vrije Universiteit Medical Centre Amsterdam, Hospice Kuria, Amsterdam and **On behalf of The European Consensus Group on Constipation in Palliative Care**

Constipation is one of the most common problems in patients receiving palliative care and can cause extreme suffering and discomfort. The aims of this study are to raise awareness of constipation in palliative care, provide clear, practical guidance on management and encourage further research in the area. A pan-European working group of physicians and nurses with significant experience in the management of constipation in palliative care met to evaluate the published evidence and produce these clinical practice recommendations. Four potentially relevant publications were identified, highlighting a lack of clear, practical guidance on the assessment, diagnosis and management of constipation in palliative care patients. Given the limited data available, our recommendations are based on expert clinical opinion, relevant research findings from other settings and best practice from the countries represented. Palliative care patients are at a high risk of constipation, and while general principles of prevention should be followed, pharmacological treatment is often necessary. The combination of a softener and stimulant laxative is generally recommended, and the choice of laxatives should be made on an individual basis. The current evidence base is poor and further research is required on many aspects of the assessment, diagnosis and management of constipation in palliative care. *Palliative Medicine* (2008); **22**: 796–807

Key words: clinical practice recommendations; constipation; palliative care

Introduction

Constipation is one of the most common problems experienced by patients in palliative care, particularly those with advanced cancer,¹ and can cause extreme suffering and discomfort to the patient. Despite this, there can be a lack of awareness among medical and nursing staff looking after patients with palliative care needs, with regard to the prevalence, causes and impact of constipation. In some cases, constipation may even be considered a low priority in the overall management of these patients.

Correspondence to: PJ Larkin, Senior Lecturer in Nursing (Palliative Care), School of Nursing and Midwifery, Áras Moyola, The National University of Ireland, Galway, Ireland.
Email: philip.larkin@nuigalway.ie

In addition to a lack of awareness, there is also an absence of clear, practical guidance on the assessment, diagnosis and management of constipation in palliative care patients.

Objectives

With the above in mind, the objectives of these clinical practice recommendations are: first, to raise awareness of constipation in palliative care; second, to provide clear, practical guidance on the assessment, diagnosis and management of constipation in palliative care patients and third, to encourage further research in the area.

Methodology

Search strategy

A systematic literature search was undertaken of PubMed from 2001 to 2006 and The Cochrane Library.

Search terms

The following key words were used to identify relevant publications, both as singular terms and in combination:

- constipation;
- laxatives;
- palliative care;
- terminal care;
- terminally ill;
- hospice;
- guidelines;
- recommendations;
- systematic reviews.

Results

The search showed four potentially relevant publications, which were considered when producing these recommendations.²⁻⁵ The most recent publication identified was a Cochrane Review on the use of laxatives for the management of constipation in palliative care (August 2006).⁵ The Review set out to determine the effectiveness of laxative administration for the management of constipation in palliative care patients and the differential efficacy of the laxatives used to manage constipation. A systematic review was conducted by the Cochrane Review Group that identified only four randomised controlled trials (RCTs) comparing laxatives for constipation in palliative care patients. The Review Group concluded that the treatment of constipation in palliative care is based on inadequate experimental evidence, in that there are insufficient RCT data and, as a result, there persists uncertainty about the most effective management of constipation in this group of patients. The Review Group also highlighted a need for more rigorous assessment of patients' bowel function and a need to support patients to take a more pro-active role in the prevention and management of constipation.

Levels of evidence

Although these clinical practice recommendations represent expert clinical opinion, it is helpful to frame the recommendations in relation to existing evidence. We

have, therefore, graded the four publications identified by the systematic literature review, according to the following two schema:

- The National Service Framework for Long Term Conditions⁶ (Table 1).
- Oxford Quality Scale⁷ and Rinck Scale⁸ used by the Cochrane Review Group to assess the methodological quality of included trials⁵ (Table 2).

Given that the evidence base is poor and there are limited data on many aspects of the assessment, diagnosis and management of constipation in palliative care, our recommendations are based on expert clinical opinion, relevant research findings from other settings and best practice from the countries represented.

We assembled a pan-European working group of healthcare professionals with significant experience in the management of constipation in palliative care, to debate and reach consensus on best practice. The recommendations reflect clinical practice in the countries represented (see author list).

Definitions

Palliative care

We agree with the definition of palliative care given by the World Health Organization (WHO) as follows:

- Palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.⁹

Constipation in palliative care patients

There are two aspects that should be considered when defining constipation in palliative care patients: the first is measurable symptoms, such as the frequency and characteristics of defecation; the second is the patient's perception of constipation, which is related to their level of discomfort and changes in bowel habit. We, therefore, propose the following definition of constipation in the palliative care setting, which is based on a previous definition:¹⁰

Table 1 Grading system used within The National Service Framework for Long Term Conditions⁶

Publication	Design	Quality	Applicability
Sykes ²	P3 (primary research – qualitative and quantitative)	Medium	Direct
Ramesh, <i>et al.</i> ³	P2 (primary research – qualitative)	Medium/Poor	Direct
Agra, <i>et al.</i> ⁴	P3 (primary research – qualitative and quantitative)	Medium/Poor	Direct
Miles, <i>et al.</i> ⁵	R1 (systematic review of existing data)	Medium/High	Indirect (patients with cancer extrapolated to palliative care)

Table 2 Oxford quality scale⁷ and Rinck scale⁸ used by the Cochrane review group to assess the methodological quality of included trials⁵

Publication	Methodological quality – Oxford quality scale	Methodological quality – Rinck scale
Sykes ²	2/5	2/6
Ramesh, <i>et al.</i> ³	3/5	2.5/6
Agra, <i>et al.</i> ⁴	2/5	3/6

- Constipation is the passage of small, hard faeces infrequently and with difficulty. Individuals vary in the weight they give to the different components of this definition when assessing their own constipation and may introduce other factors, such as pain and discomfort when defecating, flatulence, bloating or a sensation of incomplete evacuation.

Because constipation should be fundamentally defined by the patient, we have not specified a frequency of defecation in our definition. However, if a patient is defecating less than three times per week (as used in the Rome II criteria for defining chronic constipation¹¹), an assessment of the patient is recommended. In palliative care patients, there is an ongoing and long-standing tendency towards constipation and therefore the management of constipation in these patients can also be considered long term (Table 3).

Prevalence of constipation in palliative care

The prevalence of constipation in palliative care patients varies in different surveys according to the patient population assessed and the definition of constipation used, and overall prevalence estimates range from 32% to 87%.^{12–15} Physical illness and hospitalisation generally increase the risk of constipation¹⁶ and, in palliative medicine, constipation is the third most common symptom after pain and anorexia.¹²

Table 3 Summary of key recommendations

Key recommendations
Constipation in palliative care is fundamentally defined by the patient
If the patient complains of constipation or defecates less than three times per week, assessment of bowel habits is warranted
A thorough patient history and physical examination are essential
A checklist of key facts should be used to assess causative factors and impact of constipation – this assessment should be continuous throughout the patient's care
If malignant intestinal obstruction is suspected, this should be investigated by radiology
Preventative measures such as ensuring privacy and comfort, encouraging activity and increasing fluid intake should be ongoing during the patient's care
Rectal intervention should be avoided where possible, but may be necessary where oral medication has been unsuccessful in re-establishing a regular bowel pattern
Generally, a combination of a softener (e.g., polyethylene glycol and electrolytes or lactulose) and a stimulant (e.g., senna or sodium picosulphate) laxative is recommended

A recent systematic review of reported symptoms in severely ill patients with a variety of underlying conditions has shed further light on the prevalence of constipation, which is remarkably similar regardless of the nature of chronic disease.¹⁷ For example, the prevalence of constipation in palliative care patients was estimated at 23–65% (cancer), 34–35% (AIDS), 38–42% (heart disease), 27–44% (chronic obstructive pulmonary disease) and 29–70% (renal disease).¹⁷ Importantly, approximately 50% of patients admitted to palliative care centres cite constipation as a problem.¹

Impact of constipation in palliative care

The impact of constipation should not be underestimated. In addition to anxiety and distress caused by the problems of passing hard faeces infrequently and with difficulty, it can also be associated with abdominal and rectal pain, abdominal distension, anorexia, nausea and vomiting, urinary retention, confusion and other negative effects on the patient's sense of well being.¹⁷ These associated symptoms can severely affect the life quality of a patient with constipation. Indeed, constipation has been reported to rival or exceed pain as a cause of distress in palliative care patients.⁷ Treatment of constipation is important not only for the relief of the immediate symptoms but also because complications of untreated constipation can increase the adverse effect on a patient's life quality. These include: inadequate absorption of oral drugs, faecal impaction, rectal tearing, rectal fissure, haemorrhoids, bowel obstruction and intestinal perforation.¹⁸

Burden of care

There are few data indicating the economic costs associated with constipation in palliative care. One systematic review of the effectiveness of laxatives in the elderly suggested that the cost of laxatives is £43 million per year in England.¹⁹ An economic study of constipation care in nursing homes in the USA suggested an annual cost of

treating constipation (drug costs plus nursing staff costs) of US \$2253 per long-term resident.²⁰ It is not known if this cost will be similar in different groups of patients receiving palliative care.

The nursing cost required to manage constipation is a substantial part of the overall costs. A UK-based study found that 80% of community nurses spend up to half a day each week treating patients with constipation.²¹ Another study reported that 5.5% of calls to an out-of-hours district nursing service were directly related to constipation.²² These figures are likely to be higher in the palliative care setting because of the increased risk factors for constipation.

Causal and contributing factors

Palliative care patients are at greater risk of constipation because of a combination of organic and functional factors (Table 4).^{7,18,23} We have not attempted to 'rank' these factors in terms of frequency or importance because in most cases a combination of these factors will contribute to the patient's constipation. However, it is worth highlighting that a large variety of causes exist, including a wide variety of pharmacological agents, and not just opioids as is often assumed. However, any patient taking opioid analgesics will have a high risk of developing constipation, and will probably require laxative treatment.

Assessment and diagnosis

As mentioned earlier, constipation is largely a 'patient-defined condition' and if a patient complains of being constipated, further assessment is required. However, even if the patient does not 'feel' constipated, there may be a need for assessment and treatment if the frequency of defecation is less than three times per week.

Either of the above situations should alert the healthcare professional to the possible presence of constipation, and a thorough and methodical assessment of the patient

should be conducted, including a full patient history and physical examination.¹⁵ It is important to take a full patient history to establish the difference between current and normal pre-illness bowel patterns and to identify any psychosocial factors that may be inhibiting the patient.^{15,24} If it is more than 3 days since the last bowel movement, or the patient describes incomplete evacuation, a rectal examination is also recommended to exclude faecal impaction. It is important to remember that leakage of fluid faeces past an impacted mass can mimic diarrhoea, and so unless the history clearly suggests that diarrhoea is the result of acute infection, rectal examination should be performed. On occasion, radiology may be recommended for specific patients.

Constipation assessment scales

There are a number of constipation assessment scales available, which have been designed to assess the presence and severity of constipation. We believe that such scales are useful, validated tools for research and training and while not recommended for routine clinical practice, they may be useful for encouraging patients to assess their own bowel movements, or when communication between the healthcare professional and patient is difficult.²⁵ Two important aspects of any tool designed for use in the clinical setting are readability and time necessary for completion. Four of the most commonly used constipation assessment scales are listed below:

- Bristol Stool Form Scale²⁶;
- Constipation Assessment Scale²⁷;
- Constipation Visual Analogue Scale¹;
- Eton Scale Risk Assessment for Constipation.²⁸

Obstruction

If a malignant intestinal obstruction is suspected, this should be investigated by history (e.g., known presence of

Table 4 Causal and contributing factors to constipation in palliative care patients (adapted from Sykes, 2004)

Organic factors	
Pharmacological agents	Antacids, anti-epileptics, anti-emetics (5-HT ₃ antagonists), antihypertensives, antiparkinsonians, anticholinergics, antidepressants, antitussives, antidiarrhoeals (when used in excess), cancer chemotherapies (vinca alkaloids), diuretics (when causing dehydration), iron (orally administered), opioid analgesics, neuroleptics
Metabolic disturbances	Dehydration (fever, vomiting, polyuria, poor fluid intake, diuretics), hypercalcaemia, hypokalaemia, uraemia, hypothyroidism, diabetes
Neurological disorders	Cerebral tumours, spinal cord involvement, sacral nerve infiltration, autonomic failure (primary such as Parkinson's disease, multiple sclerosis, motor neurone disease; or secondary to cancer or diabetes)
Structural abnormalities	Pelvic tumour mass, radiation fibrosis, painful anorectal conditions (haemorrhoids, anal fissure, perianal abscess), uncontrolled cancer-related pain or other pain such as movement-related pain or breakthrough pain
Functional factors	
Diet	Poor appetite and low amounts of food intake, low-fibre diet, poor fluid intake
Environmental	Lack of privacy, comfort or assistance with toileting
Other factors	Advanced age, inactivity, decreased mobility, confined to bed, depression, sedation

intra-abdominal tumour, absence of passage of flatus per rectum), examination (e.g., abdominal distension, abnormal bowel sounds) and, if necessary, radiology (e.g., plain X-ray of the abdomen). If the obstruction is partial, a softener should be used alone (see discussion on treatment later in this document). If the intestine is fully obstructed, laxatives should not be used and consideration should be given to surgical or conservative management.

Confirmation of constipation

If constipation is confirmed, further enquiry is advised to assess causative factors and the impact of constipation on the patient. To help the healthcare professional illicit the most valuable information from the patient, we have suggested a checklist of key facts that should be established (Table 5). The questions asked of the patient should illicit information on the frequency and consistency of bowel movements, changes in bowel pattern, the presence and severity of discomfort and pain, the sensation of complete evacuation and feelings of satisfaction, the importance and emphasis that the patient places on constipation and normal bowel function, and any other psychosocial factors that may be affecting the patient's ability to defecate.

Management of constipation in palliative care

Aims

The aims of management of constipation in palliative care patients are to:

- re-establish comfortable bowel habits to the satisfaction of the patient;
- relieve the pain and discomfort caused by constipation and improve the patient's sense of well being;
- restore a satisfactory level of independence in relation to bowel habits;
- consider individual patient preference;
- prevent related gastrointestinal symptoms such as nausea, vomiting, abdominal distension and abdominal pain.

General principles of prevention

To achieve these aims, some important aspects of management must be ongoing and continuous. In palliative care, the underlying causal factors for constipation are likely to be long-standing and therefore the bowel pattern must be continually assessed. The ongoing assessment of the patient is important for two reasons. First, it is necessary to monitor improvements or deterioration in the patient's bowel pattern or their perception of bowel movements, regardless of whether they are receiving treatment or not. Second, assessment helps management decisions because some of the causal factors of constipation may be modifi-

Table 5 Checklist of key facts that should be established by the healthcare professional when constipation is suspected (based on Sykes, 2004)

Frequency and consistency of bowel movements
Is the patient continent or incontinent?
When were the bowels last opened?
What was the consistency of the last stool?
Is there blood in the stool?
Is there mucus in the stool?
Changes in the patient's bowel pattern
Does the patient feel more constipated than normal?
How characteristic of recent bowel habits was the last defecation?
Is the level of straining greater than usual during defecation?
Is the urge to defecate largely absent?
Discomfort and pain
Is defecation painful?
Is there discomfort during defecation?
Does the patient feel a need to defecate, but is unable to do so, because of rectal pain or movement-induced pain?
Sensation of complete evacuation
Does the patient feel satisfied after defecation?
How important is regular bowel movement to the patient?
Does the patient have feelings of anxiety about their bowel pattern?
Does constipation cause concern or worry?
Environmental factors affecting bowel movement
Does the patient have sufficient privacy to defecate?
Does the patient require assistance to get to a toilet?
Does the patient feel sufficiently comfortable to defecate?
Use of bed-pans can cause abnormally high strain pressures
The patient can feel physically unstable (e.g., on a bed-pan), which can affect confidence and ability to defecate

able (e.g., if a particular pharmacological agent is identified as a possible causative factor, changing the agent or route of administration may reduce the risk of constipation).

Prevention of constipation

As with most medical conditions, healthcare professionals should encourage and promote changes in the patient's lifestyle, or other underlying factors that may prevent or reduce constipation. Patient education is, therefore, a central part of prevention. It is important to realise that, as with assessment, preventative measures should be ongoing throughout a patient's palliative care. Key approaches to prevent or reduce the risk of constipation are listed below.

- Ensuring privacy and comfort to allow a patient to defecate normally;
- Increasing fluid and fibre intake within the patient's limits;
- Encouraging activity and increased mobility within the patient's limits;
- Anticipating the constipating effects of pharmacological agents, such as opioids, and providing laxatives prophylactically.

Abdominal massage may also be useful in some patients for the prophylaxis and treatment of constipation, usually com-

bined with other measures. Individuals may find personal benefit from a range of other complementary therapies.

It should be noted that, although it is commonsense to encourage patients to take practical steps to prevent or reduce the risk of constipation through lifestyle factors such as diet and mobility, and that healthcare professionals involved in the management of palliative care patients have a duty of care to encourage such changes, research suggests that there is a limit to their influence and they should not be solely relied upon.

Fluid and fibre intake

Many palliative care patients often have a degree of anorexia²⁹ and, with the reduction in the overall amount of food consumed, comes a reduction in the intake of high fibre food.³⁰ Although dietary fibre supplements have been shown to increase stool weight and decrease transit time,³¹ the amount of fibre required to have an effect is unrealistic to expect a palliative care patient to consume. A study of cancer patients undergoing radiotherapy showed that a 50% increase in bowel frequency would require a 450% increase in fibre intake.³² Adequate fluid intake is equally important to bowel function and the effectiveness of dietary fibre;³³ however, the ability to consume fluids often diminishes with disease progression. Research suggests that the prevention of constipation requires at least 2 L of fluid per day and at least 1.5 L is required for the safe use of dietary fibre supplements.³⁴ It has, therefore, been concluded that, for reasons of both efficacy and safety, reliance on dietary fibre for the relief of constipation in palliative care is inappropriate.³⁰

Mobility

Although there is evidence to support the link between exercise and faster bowel transit times,³⁵ there is a limit to this influence. Research in the general adult population has shown only a weak correlation between constipation and physical activity and, in fact, increasing exercise was shown to be more likely to improve well being than to reduce constipation.³⁶ In a palliative care population, the prime motivation for maximising mobility should be improved quality of life with any improvement in constipation being an additional benefit.³⁰

General principles of treatment

Although preventative measures will help many patients, constipation is a frequent symptom in palliative care patients and pharmacological treatment is often necessary. Similarly, the underlying cause of constipation is often unavoidable. The preferred treatment will have certain desired properties (Table 6).

Classification of laxatives

The variety of laxatives available can be broadly separated into two types: those that act predominantly by softening faecal matter and those that act predominantly through direct stimulation of peristalsis (Figure 1 and Table 7). The evidence to favour one laxative over another in palliative medicine is scarce, but below we make some general recommendations when considering the prescription of laxatives in this setting. Clearly, the availability of different laxatives in different countries will also influence the choice of agent.

Rectal suppositories

We acknowledge that the social acceptability of these interventions varies from country to country, but oral laxatives should, where possible, be used in preference. Rectal treatments may be necessary (alone or in combination with oral laxatives) in patients who cannot tolerate or swallow oral laxatives, when there is faecal impaction, or in patients with spinal cord lesions and disrupted innervation to the lower bowel. It should be noted that arachis oil is derived from peanut oil and peanut allergy may prevent its use.

Specific recommendations for laxative treatment

As mentioned previously, there are limited data on the efficacy and safety of laxatives in palliative care patients. To our knowledge, there are only three published clinical trials assessing efficacy and safety in this patient group, and these have shown minimal differences in effectiveness between individual laxatives.²⁻⁴

Generally, a combination of a softener and a stimulant is recommended for the management of constipation in palliative care. Peristalsis stimulants have a tendency to cause colic pain unless accompanied by an agent that will soften the stool. However, in a frail patient, a softener used alone may not be sufficient to enable a stool to be expelled, or may do so only if an unacceptably large volume is swallowed. Generally, lactulose is similar to other softeners in its ability to expel a stool, but occasionally it can produce a strong purgative action. Flatulence is a more common problem with lactulose use.³⁸⁻⁴⁰ Among stimulant laxatives, it is advisable not to use danthron-containing preparations in incontinent patients because of the risk of skin contact giving rise to irritation and rashes.

Any laxative will be more effective if the patient is well-hydrated,³⁴ but this is increasingly difficult to achieve as the patient becomes more ill. If bulking agents, such as isphagula, methyl cellulose and bran, are taken with inadequate water, they can precipitate intestinal obstruction through formation of a viscous mass in the bowel. For

Table 6 Preferred characteristics of a laxative

Oral formulation
Palatable
Minimal side effects at recommended doses – in particular colic pain
Potent enough to have an effect but not so potent as to carry a high risk of inducing diarrhoea
Total number of pills or total volume of liquid medication at an acceptable level for the patient

this reason, they should generally not be used in palliative care patients, many of whom will be unable to consume such large volumes of fluid.^{15,41}

When constipation is diagnosed, a spontaneous bowel action may not be possible if faecal impaction is present. In these circumstances, an enema or suppository may be needed. An oil or phosphate enema is indicated for impaction with hard faeces, but for a softer faecal mass, suppositories may be adequate. If oral laxative treatment is given alone, a bowel action should be expected within 3 days. If this does not occur, the use of a combination of softening and stimulant laxatives is essential. The dose should then be titrated upward on a daily or alternate day basis until a bowel action is achieved. If practicable, and acceptable to the patient, rectal examination for impaction should also be performed periodically during this up-titration and an enema or suppository used if indicated. However, adequate oral laxative dose titration can halve the need for rectal interventions. The occurrence of colic means that the dose of softening laxative should be increased relative to that of the stimulant, whereas the development of faecal leakage suggests a need to reduce the softening dose and perhaps increase that of the stimulant. Within each laxative category, there is no conclusive evidence to recommend any specific preparation, but on an idiosyncratic basis, one agent may suit an individual patient better than another and so flexibility is needed on the part of the prescriber.

In summary, the combination of a softener and stimulant is recommended and should be chosen on an individual basis, but potency, propensity to induce colic pain, and the ability to swallow large volumes of liquid are all factors that should be carefully considered when matching treatment to the patient.

Recommendations for patients with specific needs

There are many patients who potentially cannot be assessed and managed following the basic principles suggested in these recommendations. For example, adults and children with any sort of cognitive impairment (e.g., confusion, dementia or special needs), or patients with spinal cord compression, may have different management needs. Although an exhaustive description of different patient groups and their management is not within the scope of these recommendations, we acknowledge that these patient groups are important in palliative care and can constitute a substantial proportion of patients that are treated.

The assessment of some patients, for example, those with more severe cognitive impairment, may need to be modified and assessed on a case by case basis. In such cases, a 'surrogate marker' for constipation may be useful and we suggest that bowel movements of less than three times per week indicate the need for further investigation and possible treatment. The ability of the patient to take a particular oral laxative may be an important aspect in the choice of treatment.

Practical advice for nurses involved in palliative care

Nursing staff play an important role in the management of constipation in palliative care because they are in regular

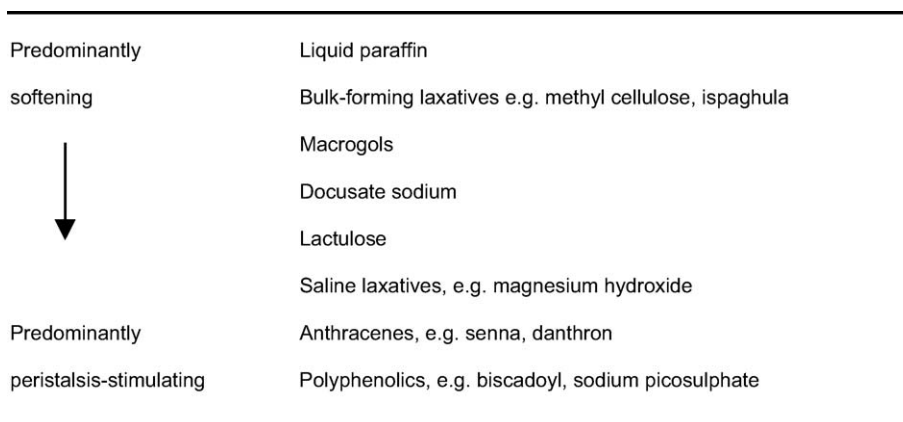


Figure 1 Oral laxative classification. Adapted from Sykes (2004).

Table 7 Key attributes of laxatives for treatment of constipation in palliative care³⁷

Type of laxative	Examples	Formulations	Starting dose	Mechanism of action	Speed of action	Possible common side effects	Contraindications	Volume of liquid required for administration
Oral laxatives								
Combination laxatives								
Softener and stimulant	Poloxamer and dantron	Suspension	5–10 mL at bedtime	Acts on nerve endings of myenteric plexus and stimulates muscles of large intestine	6–12 h	Temporary pink or red colouring of the urine and peri-anal skin	Abdominal pain or intestinal obstruction	5–10 mL daily
		Capsule	1–2 capsules at bedtime					Water required for ingestion of capsules
Predominantly softening laxatives								
Faecal lubricants	Liquid paraffin	Liquid/syrup	10–30 mL daily in divided doses before breakfast and at bedtime	Lubricates and softens stools	1–3 days	Anal seepage, perianal irritation, risk of lipoid pneumonia	Abdominal pain, nausea or vomiting	10–30 mL daily
Macrogols	Polyethylene glycol and electrolytes	Powder for oral solution	1–3 sachets daily in divided doses, according to individual response	Works by increasing stool water content and triggering directly colonic propulsive activity and defecation	1–3 days	Abdominal distension and pain, borborygmi and nausea. Mild diarrhoea that usually responds to dose reduction	Intestinal perforation or obstruction because of structural or functional disorder of gut wall, severe inflammatory conditions of intestinal tract (Crohn's disease, ulcerative colitis and toxic megacolon)	125–375 mL daily (based on 1–3 sachets daily)
Osmotic laxatives	Lactulose	Liquid	15 mL twice daily	Increases water in intestinal lumen and faecal weight	1–2 days	Increased flatulence, cramps and abdominal discomfort	Galactosaemia and intestinal obstruction	15–30 mL daily
Surfactants	Docusate sodium	Capsule	Up to 500 mg daily in divided doses	Increases water penetration and soften stools	1–3 days	Diarrhoea, nausea, abdominal cramps or skin rash	Abdominal pain, nausea, vomiting or intestinal obstruction. Hereditary problems of fructose intolerance	Water required for ingestion of capsules
Saline laxatives	Magnesium hydroxide, magnesium sulphate	Suspension Emulsion	30–45 mL daily at bedtime 25–50 mL daily at bedtime	Increases intestinal water secretion and stimulates peristalsis	1–6 h	Diarrhoea may occur, which is dose related	Cardiac disease or poor renal function	30–45 mL daily 25–50 mL daily
Predominantly stimulating laxatives								
Anthracenes	Senna	Tablet	1–2 tablets daily at bedtime	Increases intestinal motility through direct stimulation of the nerve endings in the colonic mucosa to induce peristalsis	8–12 h	Watery diarrhoea	Abdominal pain, intestinal obstruction, nausea or vomiting	Water required for ingestion of tablets
		Syrup	10 mL daily at bedtime					10 mL daily
Polyphenolics	Bisacodyl	Tablet	1–2 tablets daily at bedtime	Increases intestinal motility through direct stimulation of the nerve endings in the colonic mucosa to induce peristalsis	6–12 h	Abdominal discomfort (including abdominal pain and cramps) and diarrhoea may occasionally occur	Intestinal obstruction, acute surgical abdominal conditions such as acute appendicitis, acute inflammatory bowel diseases, and severe dehydration	Water required for ingestion of tablets

(continued)

Table 7 (continued)

Type of laxative	Examples	Formulations	Starting dose	Mechanism of action	Speed of action	Possible common side effects	Contraindications	Volume of liquid required for administration
Oral laxatives								
Rectal laxatives Predominantly softening Faecal lubricants	Sodium picosulphate	Liquid	5–10 mL daily at bedtime	Increases intestinal motility through direct stimulation of the nerve endings in the colonic mucosa to induce peristalsis	6–12 h	Abdominal discomfort (including abdominal pain and cramps) and diarrhoea may occasionally occur	Intestinal obstruction, acute surgical abdominal conditions such as acute appendicitis, acute inflammatory bowel diseases and severe dehydration	5–10 mL daily
	Arachis oil enema	Solution	Two to four capsules (5–10 mg) at bedtime	Softening agent increasing penetration of fluid into faeces causing them to soften	Up to 1 h	Local irritation	Hypersensitivity to Arachis oil or peanuts. Inflammatory bowel disease, except under the instruction of a medical practitioner	N/A
	Docusate sodium enema	Gel	1	Softens stool by aiding water penetration of the faecal mass	5–20 min	Anal or rectal burning and pain, short lasting diarrhoea. Hepatotoxicity reported when used in association with other laxatives	Haemorrhoids, anal fissures, rectocolitis, bleeding, abdominal pain, intestinal obstruction, nausea, vomiting and inflammatory bowel disease	N/A
Osmotic laxatives	Glycerol suppository	Suppository	1	Increases water in intestinal lumen and faecal weight	15–60 min	Local irritation	Rarely hypersensitivity reactions	N/A
	Phosphate enema	Solution	1	Exerts laxative effect via osmotic properties and encourages evacuation	15 min	Local irritation	Inflammatory or ulcerative conditions of large bowel, increased colonic absorptive capacity, for example, Hirschsprung's disease, acute gastrointestinal conditions	N/A
	Sodium citrate enema	Liquid	1	Increases intestinal water secretion and stimulates peristalsis	30–60 min	No side effects reported. Excessive use may cause diarrhoea and fluid loss	Inflammatory bowel disease	N/A
Predominantly stimulating Polyphenolics	Bisacodyl suppository	Suppository	1–2 at bedtime	Increases intestinal motility through direct stimulation of the nerve endings in the colonic mucosa to induce peristalsis	15–60 min	Abdominal discomfort (including cramps and abdominal pain) and diarrhoea, local irritation	Patients with intestinal obstruction, acute surgical abdominal conditions such as acute appendicitis, acute inflammatory bowel diseases and in severe dehydration. In patients with anal fissures or ulcerative proctitis with mucosal damage present	N/A

Prophylaxis and ongoing assessment of bowel pattern

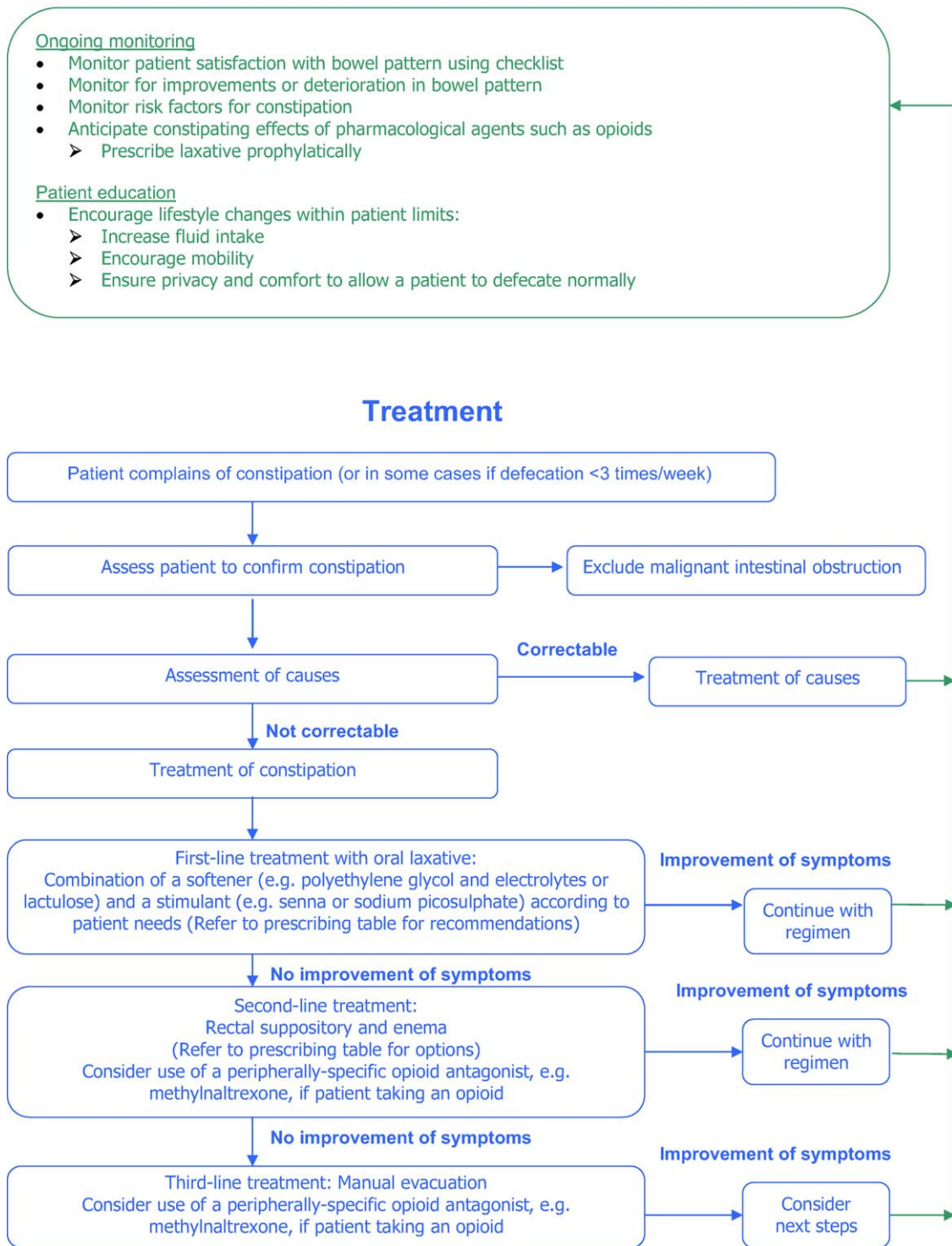


Figure 2 Prophylaxis and ongoing assessment of bowel pattern.

contact with patients. Anticipation and evaluation are key roles of nursing staff – nurses are ideally placed to assess the patient's risk of becoming constipated and to assess the efficacy of constipation prophylaxis or treatment. A number of specific aspects of care can, therefore, be monitored and managed on a day-to-day basis by nurses. These include regular assessment of the following factors:

- quantity and quality of stools;
- length of time taken to defecate;
- diarrhoea and overflow diarrhoea;
- continence and incontinence;
- effectiveness of laxatives;
- use of complementary therapies;
- diet and fluid intake;
- satisfaction with environmental factors, such as comfort and privacy;
- need for abdominal massage.

We have developed an algorithm to summarise our recommendations on prophylaxis, ongoing assessment and treatment (Figure 2), which we feel would serve as an excellent guide for all medical and nursing staff involved in the management of constipation in palliative care patients.

Recommendations for management of constipation in the dying patient

During the last days of life, it is important to regularly reassess the aims of management, as previous symptoms may improve or worsen and new symptoms may arise.⁴² Although constipation can still be a problem in the last days of life, a patient's deteriorating functional status can mean that the symptoms of constipation become less apparent as they become comatose and, as such, the management of constipation becomes a lower priority in their overall care.

In the last few days of life, when patients are no longer able to receive medication and their level of consciousness diminishes, oral laxatives should be discontinued. The need for rectal care is likely to be rare at this stage.

New developments

In April 2008, the European Medicines Agency approved the use of methylalntrexone (Relistor) by subcutaneous injection for the relief of opioid-induced constipation. This is the first time that a specific treatment for constipation linked to opioid analgesia has become available. Methylalntrexone is formed by *N*-methylation of the basic nalntrexone molecule, which restricts its ability to cross the blood–brain barrier. Hence, methylalntrexone antagonises opioid actions at gastrointestinal μ -opioid receptors without impairing analgesia mediated by

opioids in the central nervous system. In a double-blind RCT conducted in 133 palliative care patients, methylalntrexone was significantly superior to placebo in stimulating laxation without evidence of exacerbation of pain or precipitation of withdrawal.⁴³ Initially, the therapeutic role of methylalntrexone is likely to be the treatment of opioid-induced constipation that has been resistant to conventional laxative interventions.

Summary

We hope that these recommendations provide healthcare professionals with a useful, practical tool for the everyday assessment, diagnosis and management of constipation in palliative care patients, and also serve to raise awareness of the problem of constipation in this important patient group.

Acknowledgements

The authors would like to thank Norgine Pharmaceuticals Ltd for funding the project with an unrestricted educational grant and providing administrative support to the Consensus Group. The Consensus Group alone is responsible for the content of the recommendations, which are based on current evidence, clinical opinion and best practice.

References

- 1 Goodman, M, Low, J, Wilkinson, S. Constipation management in palliative care: a survey of practices in the United Kingdom. *J Pain Symptom Manage* 2005; **29**: 238–244.
- 2 Sykes, NP. A clinical comparison of laxatives in a hospice. *Palliat Med* 1991; **5**: 307–314.
- 3 Ramesh, PR, Kumar, KS, Rajagopal, MR, Balachandran, P, Warriar, PK. Managing morphine-induced constipation: a controlled comparison of an Ayurvedic formulation and senna. *J Pain Symptom Manage* 1998; **16**: 240–244.
- 4 Agra, Y, Sacristan, A, Gonzalez, M, Ferrari, M, Portugues, A, Calvo, MJ. Efficacy of senna versus lactulose in terminal cancer patients treated with opioids. *J Pain Symptom Manage* 1998; **15**: 1–7.
- 5 Miles, CL, Fellowes, D, Goodman, ML, Wilkinson, S. Laxatives for the management of constipation in palliative care patients. *Cochrane Database Syst Rev* 2006: CD003448.
- 6 Department of Health. The National Service Framework for Long-term Conditions. March 2005. <http://www.dh.gov.uk/en/Healthcare/NationalServiceFrameworks/Longtermconditions/index.htm> Last [accessed 13.02.08].
- 7 Jadad, AR, Moore, RA, Carroll, D, Jenkinson, C, Reynolds, DJ, Gavaghan, DJ, *et al.* Assessing the quality of reports of randomized clinical trials: is blinding necessary. *Control Clin Trials* 1996; **17**: 1–12.

- 8 Rinck, GC, Van den Bos, GAM, Kleijnen, J, de Haes, HJCM, Schade, E, Veenhof, CHN. Methodological issues in effectiveness research on palliative cancer care: a systematic review. *J Clin Oncol* 1997; **15**: 1697–1707.
- 9 World Health Organization. *WHO definition of palliative care*. Geneva: World Health Organization; 2007.
- 10 Sykes, NP. Constipation and diarrhoea. In: Doyle, D, Hanks, GWC, Cherny, N, Calman, K, (eds), *Oxford Textbook of Palliative Medicine*. Oxford: Oxford University Press; 2004. p. 483–496.
- 11 Thompson, WG, Longstreth, GF, Drossman, DA, Heaton, KW, Irvine, EJ, Muller-Lissner, SA. Functional bowel disorders and functional abdominal pain. *Gut* 1999; **45**(Suppl. 2): II43–II47.
- 12 Potter, J, Hami, F, Bryan, T, Quigley, C. Symptoms in 400 patients referred to palliative care services: prevalence and patterns. *Palliat Med* 2003; **17**: 310–314.
- 13 Curtis, EB, Krech, R, Walsh, TD. Common symptoms in patients with advanced cancer. *J Palliat Care* 1991; **7**: 25–29.
- 14 Sykes, NP. The relationship between opioid use and laxative use in terminally ill cancer patients. *Palliat Med* 1998; **12**: 375–382.
- 15 Fallon, M, O'Neill, B. ABC of palliative care. Constipation and diarrhoea. *BMJ* 1997; **315**: 1293–1296.
- 16 Wigzell, FW. The health of nonagenarians. *Gerontol Clin (Basel)* 1969; **11**: 137–144.
- 17 Solano, JP, Gomes, B, Higginson, IJ. A comparison of symptom prevalence in far advanced cancer, AIDS, heart disease, chronic obstructive pulmonary disease and renal disease. *J Pain Symptom Manage* 2006; **31**: 58–69.
- 18 Mancini, I, Bruera, E. Constipation in advanced cancer patients. *Support Care Cancer* 1998; **6**: 356–364.
- 19 Peticrew, M, Watt, I, Sheldon, T. Systematic review of the effectiveness of laxatives in the elderly. *Health Technol Assess* 1997; **1**: i–iv, 1–52.
- 20 Frank, L, Schmier, J, Kleinman, L, Siddique, R, Beck, C, Schnelle, J, *et al*. Time and economic cost of constipation care in nursing homes. *J Am Med Dir Assoc* 2002; **3**: 215–223.
- 21 Poulton, B, Thomas, S. The cost of constipation. *Prim Health Care* 1999; **9**: 17–22.
- 22 Withell, B. A protocol for treating acute constipation in the community setting. *Br J Community Nurs* 2000; **5**: 110, 112, 114–117.
- 23 Cherny, NI. Taking care of the terminally ill cancer patient: management of gastrointestinal symptoms in patients with advanced cancer. *Ann Oncol* 2004; **15** (Suppl. 4): iv205–iv213.
- 24 Perdue, C. Managing constipation in advanced cancer care. *Nurs Times* 2005; **101**: 36–40.
- 25 Heaton, KW, Radvan, J, Cripps, H, Mountford, RA, Braddon, FE, Hughes, AO. Defecation frequency and timing, and stool form in the general population: a prospective study. *Gut* 1992; **33**: 818–824.
- 26 Longstreth, GF, Thompson, WG, Chey, WD, Houghton, LA, Mearin, F, Spiller, RC. Functional bowel disorders. *Gastroenterology* 2006; **130**: 1480–1491.
- 27 McMillan, SC, Williams, FA. Validity and reliability of the Constipation Assessment Scale. *Cancer Nurs* 1989; **12**: 183–188.
- 28 Potter, JM, Norton, C, Cottenden, A. *Bowel care in older people: research and practice*. London: Royal College of Physicians; 2002.
- 29 Addington-Hall, J, McCarthy, M. Dying from cancer: results of a national population-based investigation. *Palliat Med* 1995; **9**: 295–305.
- 30 Sykes, NP. The pathogenesis of constipation. *Support Oncol* 2006; **4**: 213–218.
- 31 Muller-Lissner, SA. Effect of wheat bran on weight of stool and gastrointestinal transit time: a meta analysis. *Br Med J (Clin Res Ed)* 1988; **296**: 615–617.
- 32 Mumford, SP. Can high fibre diets improve the bowel function in patients on radiotherapy ward? In: Twycross, RG, Lack, SA, (eds), *Control of alimentary symptoms in far advanced cancer*. Edinburgh: Churchill Livingstone; 1986. p. 183.
- 33 Ouellet, LL, Turner, TR, Pond, S, McLaughlin, H, Knorr, S. Dietary fiber and laxation in postop orthopedic patients. *Clin Nurs Res* 1996; **5**: 428–440.
- 34 Anti, M, Pignataro, G, Armuzzi, A, Valenti, A, Iascone, E, Marmo, R, *et al*. Water supplementation enhances the effect of high-fiber diet on stool frequency and laxative consumption in adult patients with functional constipation. *Hepatogastroenterology* 1998; **45**: 727–732.
- 35 Cordain, L, Latin, RW, Behnke, JJ. The effects of an aerobic running program on bowel transit time. *J Sports Med Phys Fitness* 1986; **26**: 101–104.
- 36 Tuteja, AK, Talley, NJ, Joos, SK, Woehl, JV, Hickam, DH. Is constipation associated with decreased physical activity in normally active subjects. *Am J Gastroenterol* 2005; **100**: 124–129.
- 37 <http://www.medicines.org.uk>; 2006.
- 38 Bass, P, Dennis, S. The laxative effects of lactulose in normal and constipated subjects. *J Clin Gastroenterol* 1981; **3**(Suppl. 1): 23–28.
- 39 Attar, A, Lemann, M, Ferguson, A, Halphen, M, Boutron, MC, Flourié, B, *et al*. Comparison of a low dose polyethylene glycol electrolyte solution with lactulose for treatment of chronic constipation. *Gut* 1999; **44**: 226–230.
- 40 Freedman, MD, Schwartz, HJ, Roby, R, Fleisher, S. Tolerance and efficacy of polyethylene glycol 3350/electrolyte solution versus lactulose in relieving opiate induced constipation: a double-blinded placebo-controlled trial. *J Clin Pharmacol* 1997; **37**: 904–907.
- 41 Goldberg, LH. A survey of hospice and palliative care. Part 2: therapeutic interventions. *Hosp Physician* 2005; **41**: 45–60.
- 42 Fainsinger, R, Miller, MJ, Bruera, E, Hanson, J, Maceachern, T. Symptom control during the last week of life on a palliative care unit. *J Palliat Care* 1991; **7**: 5–11.
- 43 Thomas, J, Karver, S, Cooney, GA, Chamberlain, BH, Watt, CK, Slatkin, NE, *et al*. Methylnaltrexone for opioid-induced constipation in advanced illness. *N Engl J Med* 2008; **358**: 2332–2343.