



GASTROINTESTINAL SYMPTOMS IN ENTERALLY FED ADULTS WITH NEUROLOGICAL CONDITIONS

A multidisciplinary tool to aid management

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This multidisciplinary tool is experience-based, and where insufficient evidence exists, recommendations are based on consensus opinions of best practice. Each patient is an individual – this tool has been developed to support clinical practice and should be used in conjunction with clinical judgement and patient wishes. Nestlé Health Science did not influence decision-making during the development of this resource – the views and recommendations expressed are those of the authors.

A recent UK audit showed that 28% of long-term patients with neurological disorders had documented evidence of enteral feeding intolerance.¹ While GI dysfunction and enteral feeding intolerance is well documented in children with neurological disorders² and in other adult patient groups,³ evidence is comparatively sparse regarding adult neurological disorders. This tool has been developed to provide pragmatic guidance for the management of enteral feeding complicated by GI symptoms in this patient group.

Introduction

Although there is currently no consensus definition of 'enteral feeding intolerance',^{4,5} clinical manifestations may include nausea, vomiting or regurgitation, diarrhoea, abdominal pain, abdominal distension and high gastric residual volumes.³⁻⁵ These symptoms may hinder the delivery of enteral formula, with implications for nutritional status. The presence of a neurological disorder may further complicate this clinical picture, owing to the complex gut-brain relationship and medical treatments that may impact on GI function.

To help guide clinical practice in this complex area, a working group of specialist dietitians and a consultant neuro-gastroenterologist met in January 2018 with the aim of developing a pragmatic guidance tool. Clinical experience and relevant evidence were drawn upon to form consensus opinions. The need for pragmatic guidance based on clinical judgement and best practice was highlighted where there was a lack of supporting data. Design of the tool was based on the discussions of the working group, the details of which are documented here.

Assessment and patient history

Taking a structured patient history may help to both identify potential causative factors for GI symptoms and determine their severity. The first stage is to establish what was 'normal' for the patient prior to symptom onset. It may be possible to identify past dietary triggers to help optimise current nutritional management (e.g. modulation of fibre intake). A history of recent medication changes may help identify potential iatrogenic cause. Alarm features ('red flags') may help identify organic disease, such as ischaemic colitis, poor liver function, intracranial causes of vomiting, IBD and very rarely GI auras for epilepsy or 'abdominal' epilepsy.

The use of assessment tools can be particularly helpful in establishing the severity of current symptoms. The King's Stool Chart, which is validated in enterally-fed populations,^{6,7} may help to more accurately quantify stool volume and type. A 'vomiting diary' that records the details of, and circumstances surrounding, any vomiting episodes may highlight the severity of upper GI symptoms and elucidate potential triggers. In the critical care setting, gastric residual volumes may also be recorded.

Upper GI symptoms

Upper GI symptoms may include reflux, vomiting, epigastric pain, bloating and early satiety.

Due to the communication difficulties that some patients experience, identification of less obvious symptoms such as reflux and indigestion may be more challenging. Patients may report or signal that they are experiencing abdominal pain. It would help to differentiate between pain localised to the stomach (**epigastric pain**), which may be related to indigestion, and the pain of acid **reflux** into the oesophagus with pain behind the sternum, in the throat or chest. In patients with asymptomatic reflux, surrogate markers may include chest infections, nocturnal cough, brash and low pH aspirates from suction aids of tracheostomies.

Nausea, vomiting and **early satiety** (feeling of fullness) after feeding may be caused by delayed gastric emptying. A 'vomiting diary' may identify triggers such as manual handling, tracheostomy suctioning, administration of medications or large boluses of fluid via the feeding tube. While it is important to consider non-feed-related factors, helpful nutrition-related strategies including reducing the size of fluid boluses or using a more concentrated enteral feed can be tried proactively to help alleviate symptoms. Where first-line strategies fail, a change of formula may be appropriate; for example, whey-based peptide formulas may help to enhance gastric emptying.^{8,9} The exclusion of constipation as a contributing factor is also important.

Medications that may be helpful for upper GI symptoms include proton pump inhibitors and prokinetics such as domperidone; however, metoclopramide should be avoided in Parkinson's disease and traumatic brain injury.¹⁰ Where vomiting episodes are linked to meals, a peripherally acting anti-emetic such as domperidone or metoclopramide may be effective.

Another common phenomenon is the sensation of **hunger** (often despite meeting full nutritional requirements with enteral formula). This can be worrying for families. In some cases, however, the patient may be expressing a desire to eat, rather than true physical hunger. Careful weight monitoring may provide reassurance that the patient is receiving adequate nutrition. Provision of calories should not be increased instinctively, as patients with low mobility are particularly at risk of unwanted weight gain. If bolus feeding is feasible, this may help mimic a normal meal pattern. For patients who are nil by mouth and wish to eat, the sight and smell of food may be particularly difficult. If possible, food service should be handled discretely.

Lower GI symptoms

Constipation, diarrhoea, abdominal pain and bloating may all complicate enteral feeding. As with upper GI symptoms, establishing the likely cause by taking a detailed patient history is important. It is worthwhile asking the patient or their relatives if there is a pre-morbid history of bowel problems such as IBS or constipation.

In **constipation**, it is important to establish whether this is a result of slow transit, or rectal evacuation difficulties. Slow transit is hallmarked by infrequent urge and hard pellet stools, while the symptoms of evacuation disorder comprise need to strain, a sense of incomplete emptying or having to digitally assist voiding. For the latter, MASCIP guidelines¹¹ provide helpful information on management. In cases of slow transit, senna, stool softeners and prokinetics may all be useful, although lactulose should be avoided as it can worsen symptoms of pain and bloating.¹²

Based on a paediatric study and personal experience within the working group, in patients with persistent constipation it may be beneficial to trial a whey-based peptide formula to help relieve symptoms of pain and bloating and improve tolerance to enteral feed.¹³

Diarrhoea is defined by the World Health Organization as 'the passage of three or more loose or liquid stools per day (or more frequent passage

than is normal for the individual)'.¹⁴ In an acute patient, diarrhoea should trigger onward referral, and it is important to rule out constipation and infective causes. Certain medications commonly used in neurological disorders may worsen diarrhoea, for example baclofen, antibiotics or preparations containing sorbitol.¹⁵ Anti-diarrhoeals may be explored with the medical team, and loperamide syrup may be particularly suitable as the dose can be more sensitively titrated according to the patient's changing needs.

For both constipation and diarrhoea, modulating the amount and type of fibre provided by enteral feeding can be an effective strategy. Fibre intakes of 20–25g/day for women and 30–35g/day for men are recommended for healthy adults.¹⁶

Several studies have highlighted the benefits of fibre for reducing the risk of diarrhoea in enterally-fed patients.^{17,18} Healthcare professionals may choose between different sources of fibre (soluble, insoluble, or mixed), although more evidence is needed to inform the selection or avoidance of these.

The addition of fibre supplements to non-fibre containing formulas may provide a flexible approach and allow for more sensitive adjustment of doses. The benefits of partially hydrolysed guar gum (PHGG, a soluble fibre) for reducing diarrhoea have been highlighted in several publications,^{19–21} while evidence also supports its role in the management of constipation.²⁰

For some patients, however, fibre may exacerbate symptoms and therefore the reduction or avoidance of fibre may be appropriate.²¹ In addition, formulas that are lower in FODMAPs (fermentable oligosaccharides, disaccharides, monosaccharides and polyols), e.g. fructo-oligosaccharides (FOS) and inulin, have also been associated with a lower risk of, and improvements in, diarrhoea.^{22, 23}

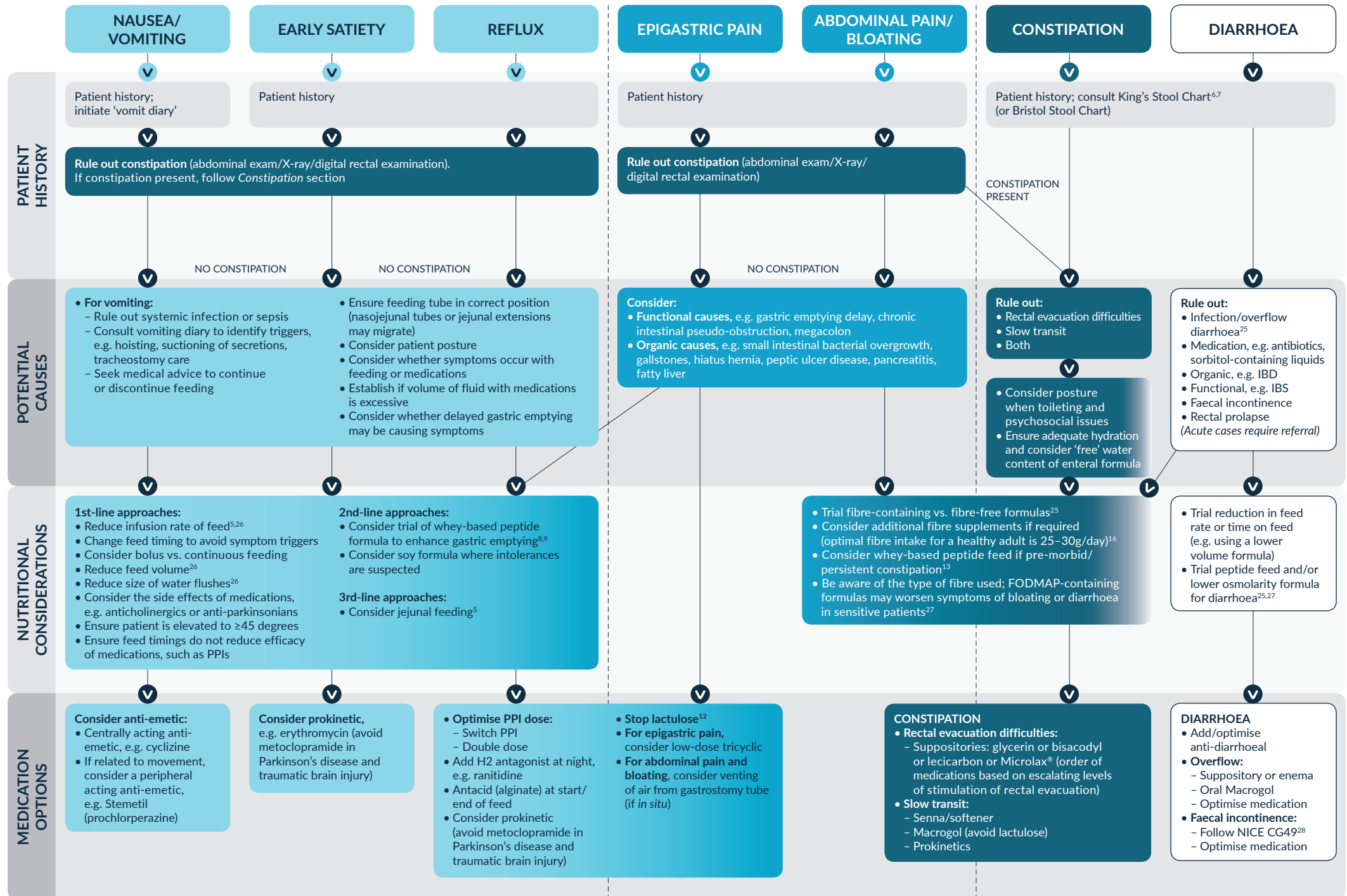
Bloating may also respond to a change in the amount or type of fibre given, or venting of air from the feeding tube using a syringe. Any adjustment to fibre intake should be gradual, and the effect on GI function monitored. Peptide based enteral formulas may also be utilised for managing diarrhoea where other strategies have not provided adequate relief.²⁴

The role of probiotics was discussed during the development of this resource, but it was felt the available evidence is too limited in this patient group to reach a consensus.

Conclusion

GI dysfunction in this patient group may be a common, yet under-recognised problem, therefore MDT collaboration is essential in its management. This pragmatic guidance tool may be used in conjunction with clinical judgement, patient wishes and wider MDT input. It may be beneficial to trial one management strategy at a time to identify which intervention has improved symptoms. In practice, however, it may be appropriate to consider medical and nutritional interventions concurrently. Ongoing review of the literature to support this document is planned and it is hoped that this tool will be used and audited to identify if there is a contribution to patient care.

IDENTIFY GI SYMPTOMS



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