Managing constipation in adults with co-morbidities

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Constipation can be described in a number of ways but in general it is related to straining, reduced frequency of defecation and/or a sensation of incomplete bowel emptying. The ability of the bowel to empty is related to the effectiveness of colonic transit (movement of contents around the large bowel) and the normal function of the defecation mechanism.

This paper provides an overview of constipation, its classification and management to relieve symptoms. An exploration of pharmacological agents is provided, particularly for those with co-morbidities. Current evidence-based practice underpins the discussion surrounding the prescribing of medicines suitable for adults presenting with constipation.

Background

Constipation is a common, often debilitating disorder with a variety of symptoms and diverse aetiology, and can be defined as infrequent defecation frequently associated with hard stool, dysfunctional emptying and straining.[1] Incomplete evacuation and digital/manual evacuation has also been described in association with constipation.[2] Constipation can be simple or complex, and can be influenced by physical, psychological, physiological, emotional and environmental factors.[3]

There is an increased incidence in females (approximately twice the rate reported in males), with an overall incidence of around 20% in general.4 As age increases, so does the incidence of constipation particularly in those over the age of 65 years and can cause a significant, often negative impact on health and quality of life.[5]

Faeces are propelled along the colon via peristalsis and is stored in the rectum until emptying.[6] Coordination of various muscles of the anal canal and pelvic floor result in defecation.[7]

In central nervous system impairment, ano-rectal sensation can become impaired and the 'call to stool' may be significantly delayed or absent which can result in constipation. Delayed transport of the faeces through the colon can result in infrequent, hard stools which can be difficult to expel.

Classification

Constipation presents as a symptom not a disease[8] and can be classified as either primary (as a consequence of functional impairment) or secondary (due to other factors such as medication or other health conditions) as outlined in Table 1.9

In many instances individuals presenting with constipation have normal colonic transit, where this is defined as the time taken for faeces to pass through the large bowel,[10] suggesting that there is an issue with emptying. Slow transit constipation and outlet obstruction are less common but cause significant problems for the sufferer and can be challenging to manage.

Causes

Abnormal function of the autonomic and/or enteric nervous system has been proposed as the basis behind delayed bowel transit time11 whereas abnormal pelvic floor function/coordination has been attributed to outlet obstruction.[12] A further complication is the existence of rectocele, from the

thinning of the recto-vaginal wall and weakening of the pelvic floor muscles, resulting in bulging of the anterior rectal wall into the posterior vaginal wall.

Aside from physiological and other medical causes, a number of different pharmacological agents can also cause constipation. Antacids, anticholinergics, antidepressants, antihistamines and diuretics have all been associated with an increased risk of constipation.[13]

Iron supplements, non-steroid anti-inflammatories (NSAIDS), psychotropic drugs and opioids, particularly morphine are also associated.[14] Where it is evident such drugs are affecting normal bowel function, alternative options are recommended to provide symptomatic relief.[15]

Assessment

Rome III criteria is a diagnostic framework used to define constipation.[16] Constipation is defined as the presence of symptoms for the previous three months, with the initial being greater than six months previously. For functional constipation, irritable bowel syndrome must have been excluded and two of the following be evident in at least 25% of the time; straining, lumpy/hard stools, sensation of incomplete evacuation, sensation of obstruction/ blockage, manual/physical manipulation to assist evacuation, less than three bowel motions per week.

Assessment and diagnosis is usually symptom-based, constituting full history including medical, surgical, dietary and drug history. Understanding of defecation difficulties in addition to the need to digitate to empty is as important as the undertaking of an abdominal examination to identify impacted stool.

The combination of these with tools such as symptom scores, stool diary utilising the Bristol Stool Form Scale[17] and food diary to assess fibre and fluid intake can provide a thorough picture.

Digital rectal examination is essential to identify haemorrhoids, rectal prolapse, anal fissure, anal tone, rectocele and faecal impaction. Routine blood tests may also be conducted to assess anaemia, thyroid function, calcium, glucose and electrolytes to exclude possibility of metabolic disorder.[18]

Radiology can provide further insight into constipation, with plain abdominal films detecting excessive stool and presence of markers to determine transit time in addition to barium enema for the identification of structural abnormalities.[19] Endoscopy provides the capability of direct visualisation of the bowel wall to identify any structural or luminal (eg malignancies) abnormalities.[16]

Management

Management aims to relieve symptoms, restore normal bowel habit and improve quality of life. Dietary and lifestyle modifications are the first-line options. However, if insufficient, various medications and pharmacotherapies can be attempted. Surgery for constipation is possible, however this tends to be when all conservative options have been exhausted.[20]

Constipation can be seen in diets with low fibre, fruit and vegetable intake. Increasing fluid and fresh fruit and vegetables in the diet can provide effective methods of managing constipation. It is unlikely however that chronic constipation is due to poor diet, however low fibre intake can be a contributing factor. Fernandez-Banares[21] recommends a daily fibre intake of 25g with increased fluid consumption to manage symptoms effectively.

Physical activity can enhance gastrointestinal transit in addition to behavioural changes to toilet practices. Ignoring the ‘call to stool’ can worsen symptoms and hence developing regular times for

defecation and avoiding excessive straining are important strategies in the management of constipation.

Rectal irrigation has been used to manage symptoms of constipation through the introduction of water via a catheter into the rectum, aiding emptying and relieving symptoms of constipation for a period of time.[10]

Pharmacological treatment

There are several pharmacology options available for treating adults with constipation in primary care. The person's co-morbidities and associated prescribed medications will need to be reviewed to ensure there are no drug interactions and/or whether a particular drug is contraindicated. An individual prescribers Trust/ organisation formulary should be consulted to ensure prescribing is within the set formulary.

Clinical Knowledge Summaries (CKS) – Constipation scenarios for adults[22] states, for short-term constipation where possible, adjusting any constipating medication; advising the person to increase dietary fibre, drinking adequate fluids and undertaking exercise first before laxatives are prescribed.

Reducing or stopping medication which causes constipation may not be possible if a person has co-morbidities. Medications known to cause constipation include opioids, some antidepressants, iron preparation, calcium preparations, diuretics, aluminium antacids.[23]

Some people will have a fluid restriction and therefore increasing fluid intake may not be possible clinically; increased exercise may not be possible for some people too. For chronic constipation a laxative should be offered when dietary measures are ineffective, medication cannot be stopped or for people with a secondary cause of constipation.[22]

Treatment is normally started for chronic constipation in adults with a bulk forming laxative, although adequate fluid intake is needed; if stools remain hard an osmotic laxative can be tried.

A stimulant laxative can be used if the stools are soft but the person still has difficulty. If the constipation is opioid-induced, bulk forming laxatives should be avoided and an osmotic and a stimulant laxative may be needed.[22] Treatment of opioid induced constipation in palliative care is not discussed within this article. The Summary of Product Characteristics (SPC) and the latest edition of the British National Formulary (BNF) should be consulted with respect to cautions, contra-indications and side effects of each laxative.

Bulk forming laxatives

These are generally considered to be first line.[22] They work by increasing faecal mass [24] working in the same way as dietary fibre. The increase in bulk should help retain fluid and stimulate peristalsis.[24] Adequate fluid intake must be maintained.

Examples include methylcellulose (also a faecal softener), ispaghula and sterculia. Ispaghula husk (eg Fybogel, Ispagel orange, Regulan) must be taken with adequate fluid to avoid intestinal obstruction, generally these preparations should not be taken before bed. They are contra-indicated in people who have difficulty in swallowing, intestinal obstruction, colonic atony and faecal impaction.[24]

Patients should be advised of side effects which include flatulence and distention. It can take two to three days for a bulk forming laxative to have an effect.

Osmotic laxatives

Along with stimulant laxatives these are considered after a bulk forming laxative.[22] There are several different types of osmotic laxative available, but first choice is usually a macrogol [22]; lactulose should be prescribed if macrogols are ineffective or not tolerated.

Osmotic laxatives increase the amount of water in the large bowel.[24] They do this by either drawing water in from the body or retaining the fluid they were taken with. Macrogols should be taken with the correct volume and measured. Lactulose is not absorbed from the gastrointestinal tract, giving limited drug interactions.

Lactulose possibly enhances the anticoagulant effects of coumarins.[24] It may take up to 48 hours to act. Common contra-indications to lactulose include galactosaemia and intestinal obstruction[24].

Several different Macrogol preparations are available, they should be discontinued if there are symptoms of fluid and electrolyte disturbances. They are contra-indicated in intestinal perforation or obstruction, paralytic ileus and conditions such as Crohns, ulcerative colitis (inflammatory bowel conditions).[24] Macrogols can also be used for faecal impaction.

Stimulant laxatives

Along with osmotic laxatives these are considered after a bulk forming laxative.[22] Stimulant laxatives include bisacodyl, dantron, senna and sodium picosulfate.[24] Dantron is restricted to constipation in terminally ill patients. Docusate also will act as a softening agent too.

Stimulant laxatives increase intestinal motility, they stimulate the muscles helping to move the stool23 and because of this action they will often cause abdominal cramps. They should be avoided in intestinal obstruction, each stimulant laxative will have its own contra-indications. Stimulants laxatives take about six to 12 hours to work.[23]

Faecal softeners

Includes docusate and arachis oil (as an enema). Arachis oil lubricates and softens faeces and also promotes a bowel movement.[24]

Arachis oil is groundnut oil or peanut oil and therefore a full medical history including allergies should be taken. Liquid paraffin is generally not used nowadays and is deemed by the joint formulary committee to be less suitable for prescribing.

Other drugs used in constipation (specialist consultation)

There are two other medications used in constipation but only by specialists. These include prucalopride which is an option for women with chronic constipation and lubiprostone for chronic idiopathic constipation in adults, both are subject to specific prescribing criteria.[22]

Lubiprostone is a locally acting chloride channel activator that enhances a chloride-rich intestinal fluid secretion, without altering electrolyte concentrations in the serum.[25] Prucalopride has prokinetic properties, it is a selective, high affinity serotonin (5-HT4) receptor agonist, which is likely to explain its prokinetic effects.[26]

Conclusion

In summary, constipation is a debilitating condition which can cause significant unwanted symptoms. What is important to remember however is that constipation is a symptom and not a disease and there are a number of approaches which can be employed to manage symptoms effectively. People should be encouraged to make lifestyle adjustments where possible to try and

reduce the severity of their symptoms. There are a range of pharmacological agents which can be used in the treatment of constipation, however it is important that special attention is paid to co-morbidities and the impact of medication prescribed to manage other conditions.

References

1. Gray JR. 2011. What is chronic constipation? Definition and diagnosis. *Can J Gastroenterol* 25: (Suppl B); 7b-10b.

2. American College of Gastroenterology Chronic Constipation Task Force. 2005. An evidence based approach to the management of chronic constipation in North America. *American Journal of Gastroenterology.* 100, Suppl 1, S1-S4.

3. Kyle G. 2010. The older person: management of constipation. *British Journal of Community Nursing*; 15: 2, 58-64.

4. Levitt MA, Mathis KL, Pemberton JH. 2011. Surgical Treatment for constipation in children and adults. *Best Practice and Research Clinical Gastroenterology*. 25(14): 167-179.

5. Gallagher P, O'Mahony D. 2009. Constipation in old age. *Best Practice and Research Clinical Gastroenterology*. 23(8):875-887.

6. Martini FH, Nath JL. 2011. *Fundamentals of anatomy and physiology, 9th ed*. San Francisco, Benjamin Cummings, Pearson Education.

7. Gardiner A. 2013. Understanding the functions required to maintain continence. *Nursing and Residential Care* 15:5;250-257.

8. Blane R, Blagrave P. 2011. Management of constipation in long-term care. *Canadian Nursing Home* 22:4; 16-18.

9. Jamshed N, Lee Z, Olden KW. 2011. Diagnostic approach to chronic constipation in adults. *American Family Physician* 84:3;299-306.

10. Gardiner A. 2009. The application of rectal irrigation in the management of functional bowel disorders. *Gastrointestinal Nursing* 7;1; 29-35.

11. Frattini JC, Noqueras JJ. 2008. Slow transit constipation: a review of a colonic functional disorder. *Clin Colon Rectal Surg* 21:2;146-52.

12. Chew S. 2007. Clinical update: Obstructed defaecation. *Australian and New Zealand Continence Journal* 13:2; 34-39.

13. Hsieh C. 2005. Treatment of constipation in older adults. *Am Fam Physician* 72: 2277-84.

14. Allan L, Hays H, Jensen NH, de Waroux BL, Bolt M, Donald R, Kalso E. 2001. Randomised crossover trial of transdermal fentanyl and sustained release oral morphine for treating chronic non-cancer pain. *BMJ* 12:322(7295);1154-8.

15. Spinzi G, Amato A, Imperiali G, Lenoci N, Mandelli G, Paggi S, Radaelli F, Terreni N, Terruzzi N. 2009. Constipation in the Elderly: Management Strategies. *Drugs Aging* 26:6; 469-474.

16. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. 2006. Functional bowel disorders. *Gastroenterology* 130:1480-91.

17. Lewis SJ, Heaton KW. 1997. Stool form scale as a useful guide to intestinal transit time. *Scand Journal Gastroenterology* 32:9;920-4.

18. Rao SSC, Meduri K. 2011. What is necessary to diagnose constipation? *Best Practice & Research Clinical Gastroenterology*. 25(10):127-140.

19. Avery G. 2004. Functional radiology of the gastrointestinal tract in Duthie G, Gardiner A. *Physiology of the Gastrointestinal tract*. London, Whurr.

20. Kamm M. 2003. Constipation and its management. *BMJ*. 327, 7413, 459-460.

21. Fernandez-Banares F. 2006. Nutritional care of the patient with constipation. In: Best practice and research: clinical gastroenterology. 20(3):575-587.

22. NICE. 2015. Clinical Knowledge Summaries – Constipation. http://cks.nice.org.uk/constipation

23. NHS. 2014. Constipation – Causes. http://www.nhs.uk/Conditions/Constipation/Pages/Causes.aspx.

24. BMJ Group. 2015. British National Formulary (Online). https://www.medicines complete.com/mc/bnf/current.

25. Sucampo Pharma Europe Limited .2013. Summary of Product Characteristics – AMITIZA. https://www.medicines.org.uk/emc/medicine/28268.

26. Shire Pharmaceuticals Limited. 2015. Summary of Product Characteristics – Resolor https://www.medicines.org.uk/emc/medicine/23204.

Table 1. Causes of secondary constipation

Cause / factor	**Disease/abnormality**
Endocrine and metabolic	Diabetes, Hypercalcaemia, Hyperparathyroidism, Hypothroidism, Uremia
Myopathies	Amyloidosis, Myotonic dystrophy, Scleroderma
Neurological	Autonomic neuropathy, Cerebrovascular disease, Hirschsprungs disease, Multiple Sclerosis, Parkinsons disease, head injury, Tumours
Psychological	Anxiety, Depression, Somatization
Structural	Anal fissure, Haemorrhoids, Colonic stenosis, Chronic intestinal inflammatory disease, Obstructive colonic lesions, Rectal prolapse, Rectocele
Other	Irritable bowel