

APPROACH TO THE PATIENT WITH CHRONIC FUNCTIONAL CONSTIPATION

E Corazziari, D Badiali

Definition of functional constipation

Functional constipation is regarded as a long-standing symptomatic manifestation of abnormal defaecation expressed by either a reduced frequency of bowel movements and/or an altered act of evacuation.

Accordingly the above symptomatic aspects are the essential elements of the Rome diagnostic criteria for functional constipation: two or more of

- ✓ straining at defaecation
- ✓ lumpy and/or hard stools
- ✓ sensation of incomplete evacuation, and/or
- ✓ two or fewer bowel movements in a week¹.

In clinical practice, most of the patients with manifestations of abnormal defaecation complain also, and oftentimes mainly, of abdominal symptoms and/or other constipation-related conditions.

In the Italian Cooperative study on Chronic Constipation², the most relevant symptoms referred by patients who self-reported constipation were: abdominal pain and/or distension, flatulence, and headache.

Thus chronic constipation presents clinically as a syndrome the core of which is represented by two or more of the Rome diagnostic criteria accompanied by none, one, or more, other symptom(s).

Prevalence

Prevalence of functional constipation varies with the different definitions used and in the different populations investigated.

Prevalence of functional constipation, on the basis of undefined, self-reported, complaints of the disturbance is about 20% of the general population^{3,4}.

The condition increases with age^{5,6} and is more frequent in adult females than adult males⁷.

Using the Rome diagnostic criteria that take into consideration reduced bowel frequency and/or impaired defaecation, the mean prevalence of functional constipation was 3.0% in a US national householder survey, varying from 2.4% in adult males to 4.8% in adult females⁸.

In an Italian nationwide survey⁹ constipation, defined on reduced bowel frequency and on paediatric diagnosis, showed a prevalence of about 10% of children.

Health status

Functional constipation may affect health status to variable degrees.

Abdominal, and even more gynaecological, surgery is more frequently performed in constipated than in normal subjects.

Constipated patients have an increased prevalence of chronic illnesses and an increased use of non-laxative medications. Only 22.9% of chronic constipated patients have ever seen a doctor and most of them have sought medical advice for non-gastrointestinal symptoms⁸.

Despite the low request for medical health care for constipation, about 13% of these patients may feel too sick to perform working activities and the days missed from work or school for constipation averages 22 per year⁸.

Furthermore, 30% of chronic constipated patients are habitual consumers of laxatives that increase bowel frequency but do not improve general well-being, abdominal or extra-abdominal symptoms and may induce from negligible to serious side-effects⁶.

Score evaluation for Quality of life (QoL) is lower in patients with functional constipation than in healthy controls.

QoL may differ markedly from patient to patient. QoL appears to be inversely related to the severity of bowel dysfunction, such as the feeling of incomplete evacuation and tenesmus, and to the severity of constipation-related symptoms such as abdominal pain, nausea, vomiting. It would also appear that an objective delay in gastrointestinal transit plays an important role in reducing QoL¹⁰ but this observation has not been confirmed¹¹.

Co-morbid conditions

The high rate of familial cases suggests that functional constipation may

be a genetic disorder, but environmental factors, such as parental behaviour and lifestyle, appear to play a substantial role in causing and maintaining the disorder^{2,12,13}. A low ratio between the number of family members and house rooms which limits privacy and toilet availability is associated with a reduced bowel frequency in children⁹. Patients with constipation frequently have psychological disturbances^{5,14} and there is evidence that symptoms of depression may be considered as an independent risk factor for constipation³. Eating behaviour disorders may also be associated with chronic constipation. Conflicting data have been reported concerning the relationship between psychological disorders and the different types of constipation. Wald et al¹⁵ indicated that only patients with normal gastrointestinal transit, as opposed to patients with prolonged transit, show psychological disturbances.

Diagnostic approach

First visit

A circumstantial and detailed clinical interview together with a rectoanal examination are of great importance for the physician to reach at least six goals when a patient complaining of constipation first comes for medical advice.

- 1 To establish a trusting doctor-patient relationship
- 2 To determine the onset and the subsequent development of the clinical condition
- 3 To find out why the patient decided to seek medical advice, if in the presence of a long-standing clinical condition
- 4 To evaluate the many cofactors: psychological, environmental, dietary, behavioural, comorbid, which usually contribute, alone or in combination, to the clinical condition.
- 5 To look for the presence of faecal impaction or other rectoanal disorders.
- 6 To find out whether the patient's complaints match the operational definition of constipation and deserve further diagnostic investigations.

Diagnostic investigations

Diagnostic investigations are indicated because the presence of symptoms complying with the definition of constipation do not offer any clue as to the aetiology, pathophysiologic mechanism(s) or severity of the disorder.

Metabolic assessment and morphological investigation of the large bowel are initially performed to evaluate possible organic causes of constipation.

In those patients who have been taking laxatives, detailed assessment of their use and of the possible occurrence of side-effects should be made. The chronic use of laxatives and enemas is a complex issue that often interferes with the diagnosis and treatment of constipation and with the patient-doctor relationship itself. The continuous use of laxatives and/or enemas does not enable the patient to provide indications concerning spontaneous bowel habits, as to stool consistency, and straining pattern. The doctor thus remains uncertain whether the patient is constipated but could anyway manage his/her disorder with less, or even without, laxatives or whether he/she is not at all constipated and thus the lack of urge to defaecate, which follows the laxative-induced bowel emptying, is the only affliction of the patient. A diary in which the patient is instructed to report bowel frequency, stool consistency, straining pattern, as well as other relevant symptoms while off laxatives/enemas would be useful to evaluate the patient's spontaneous complaints¹⁶. Some, especially elderly, patients, however, may object to staying off laxatives or may offer opposition to other types of treatment and this behaviour may even give rise to a patient-doctor conflict.

Although the excessive use of laxatives may cause relevant side effects, there are no hard data to support the widespread belief that laxatives per se are detrimental and should be avoided at all costs. This widespread and deep-rooted belief may affect both the patient's and the doctor's behaviour.

Some patients may feel guilty for having used laxatives/enemas and look for alternative treatments that might not be as successful or can be frustrated by doctors prescribing other types of laxatives. It is also possible that, for the same belief, the doctor may oppose the use of laxatives that the patient has been using profitably and without side-

effects. The above-mentioned behaviours may lead to a conflictual relationship between the patient and his/her physician. A practical and constructive approach is for the doctor to offer suggestions and indications on the use, if any, of laxatives /enemas, taking into account the patient's cultural attitude on bowel emptying and habits on the use of laxatives.

Functional tests of the colon, rectum and anus may be helpful to assess the pathophysiologic mechanism(s) of chronic constipation. Assessment of the segmental large bowel transit time is of value to identify whether and in which part of the large bowel there is faecal retention¹⁷. According to results of this investigation, patients can be classified into four subtypes:

- 1 with normal transit
- 2 with slow colonic transit
- 3 with slow rectal transit
- 4 with slow rectal and colonic transit.

Anorectal manometry, defaecography, and electromyography of the anal and pelvic floor muscles^{18,19} may be indicated in those patients with normal transit or slow rectal transit in whom a defaecatory dysfunction may be found. Manometry of the colon is indicated in those patients with slow colonic transit who do not respond to dietary and laxative treatment (severe constipation).

Therapeutic approach

General measures

Treatment of functional constipation is based, in all cases, on a good patient-doctor relationship as well as patient's education. It is necessary to carefully study the patient's history to check dietary and/or behavioural habits possibly responsible for constipation. Fibre intake correlates with faecal output and transit through the large bowel. A low intake of fibre should be modified either by increasing the amount of vegetables to reach at least 15-18 g of dietary fibres and/or by adding fibre integrators (bran, psyllium, etc.) with adequate intake of water (1500 ml/day). Bulking agents accelerate large bowel transit, and

increase frequency of bowel movements. It is likely that intraluminal distention secondary to bulking agents, speeds up the large bowel transit by eliciting propulsive and/or inhibiting segmenting contractions. Bulking agents are generally recommended as a first therapeutic step in chronic constipation but not all patients benefit from them. Patients with slow rectal transit may not be responsive to bulking agents²⁰ and furthermore, patient's compliance to bulking agents may be reduced due either to palatability and/or bloating.

Some subjects may ignore or defer the call to evacuate because of lack of time and/or suitable toilet facilities. In this condition, it may be useful to retrain bowel habits by attempting to empty the bowel in a favourable setting, possibly in a mentally and physically relaxed state, and after a meal in order to take advantage of the gastro-colonic response.

Some patients believe it is necessary to evacuate daily or more than once/day. Others, with normal bowel habits, believe that symptoms such as abdominal bloating and/or pain, nausea, headache will improve with more frequent evacuations. These subjects may interpret their symptoms as due to inadequate bowel emptying and use laxatives chronically, with no improvement in abdominal symptoms that, on the contrary, may even be made worse by laxatives. These patients should be informed about normal bowel frequency and the origin of their symptoms that are not caused by constipation.

Some patients report a distressing need to evacuate repeatedly for any minimal amount of faeces retained in the rectum. This type of problem is usually associated with an obsessive-compulsive behaviour and is interpreted by the patients as constipation. In these patients and in those complaining mainly of pain and/or bloating, low dose tricyclic antidepressants may be helpful^{5,21}.

In those patients in the habit of continuously using laxatives, it is advisable to assess bowel movements and to perform functional tests during a laxative-free period.

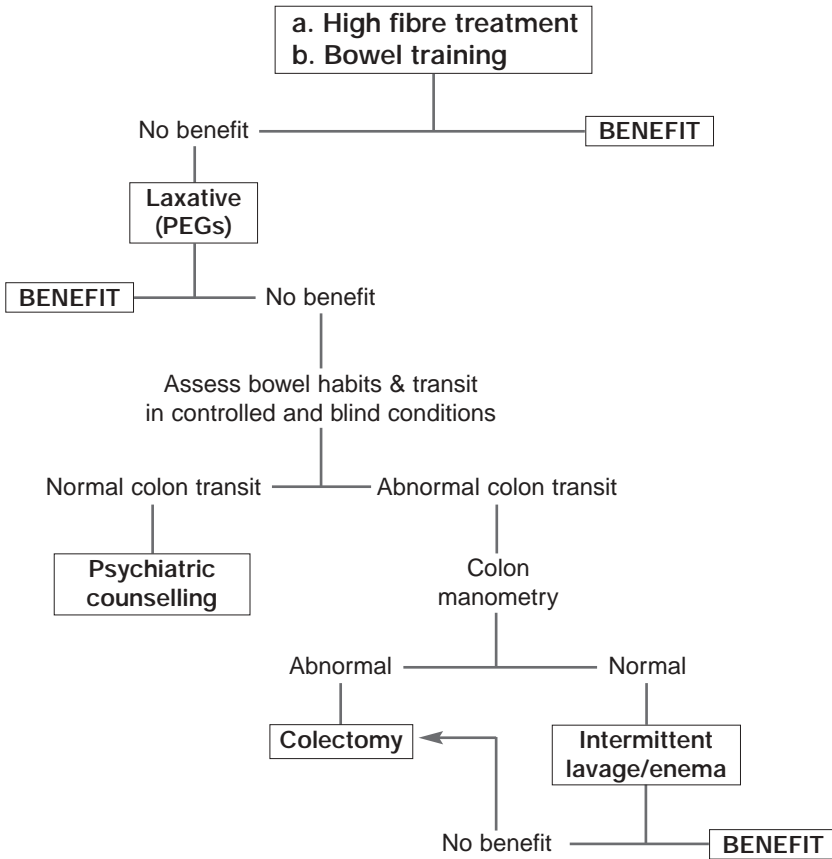
Normal transit and normal anorectal function

Patients with normal intestinal transit and normal anorectal function may only need reassurance, education about bowel physiology and symptom interpretation and, if necessary, dietary advice with fibre supplementation.

Slow colonic transit (Figure 1)

With bran treatment (30 g/die) transit time and frequency of bowel movements may return to normal in patients with slow colonic transit constipation²⁰.

Figure 1



PEGs Polyethylene glycol solution.

Possible diagnostic-therapeutic algorithm in constipated patients with slow colon transit.

A subgroup of patients with slow transit through the colon may be unresponsive to bulking agents, and, in these subjects, a trial with oral laxatives should be attempted.

Those patients who still complain of the impossibility to empty the bowel despite laxatives should have their bowel frequency and intestinal transit assessed after blind administration of radiopaque markers. This blind evaluation may require hospital admission in order to control ingestion of disguised markers and bowel emptying as well as to perform radiographic assessment, with the patient being unaware of the test²². In these conditions, if markers are not evacuated spontaneously, bowel emptying and marker transit should be assessed after oral administration of one litre, or more, of isosmotic polyethylene glycol solution (PEGs). In those patients refractory to any conservative, even aggressive, approach, surgical treatment with colectomy and ileo-rectum anastomosis, should be taken into consideration. These are often young women with a depressive syndrome, and absence of colonic motor activity; before surgery, it is necessary to assess whether motor abnormalities affect the stomach and/or the small bowel and whether a condition of marked psychopathology is also present²³.

The Malone antegrade colonic enema through a non-refluxing appendicular stoma may offer a valid alternative to colectomy²⁴. However, the Malone procedure is associated with a high failure rate when used in neurologic constipated adults²⁵; it may not be successful in patients with obstructed defaecation and severe constipation.

Rectal faecal impaction and megarectum

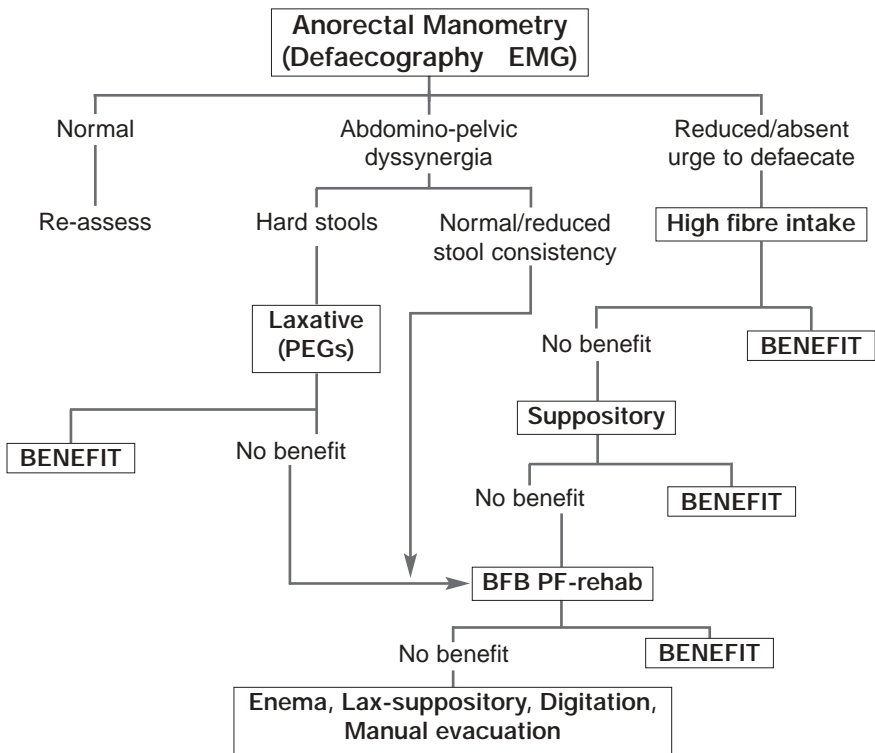
Slow transit through the rectum can lead to faecal impaction and megarectum. In this condition, which is frequent both in children and the elderly, rectal impaction must first be removed using either oral administration of PEGs²⁶⁻²⁸ or iso- or hyper-osmotic enemas (2000 ml/die until satisfactory emptying of the large bowel has been achieved)²⁹; effects may be enhanced by prior administration of mineral oil per rectum.

Treatment is then based on scheduled bowel evacuations, bowel habit retraining with regular use of laxatives and/or anorectal biofeedback³⁰. In children and non-cooperative patients, large daily doses of oral laxatives can be used.

Anorectal dysfunction (Figure 2)

In normal conditions, evacuation is the result of the synergism between the contraction of abdominal muscles and appropriate inhibition of the pelvic floor triggered by the arrival of adequate amounts of faeces in the rectum that elicit the urge to defaecate. Hard and pellety stools, impairment of rectal sensation and/or lack of relaxation or paradoxical contraction of the external anal sphincter and puborectalis during straining (pelvic floor dyssynergia) can impede evacuation³¹.

Figure 2



EMG Electromyography PEGs Polyethylene glycol solution BFB Biofeedback
PF-rehab Pelvic Floor rehabilitation.

Possible diagnostic-therapeutic algorithm in constipated patients with either slow rectal transit or normal transit.

Treatment of these anorectal dysfunctions is based on biofeedback and bowel habit training once stools have been brought to within normal consistency³².

When perception of the stimulus to defaecate is reduced, prescription of a high residue diet, integrated with additional fibre supplements, may be required to increase stool volume so that efficient rectal distension may more rapidly reach the threshold of rectal perception triggering defaecation. Bowel habit training consists in attempting to open the bowels after a meal, either spontaneously or using a defaecatory stimulus; it is aimed to induce defaecation, at regular time intervals and to avoid rectal impaction.

If patients are unresponsive to fibre supplementation a glycerine suppository can be added in order to train the bowel by inducing defaecation at regular time intervals.

If stools are still hard and pelleted, it may be useful to give a low daily dosage of isosmotic PEGs to reduce faecal consistency³³.

In patients with low rectal sensitivity and in those with proven abdomino-pelvic dyssynergia, biofeedback and other rehabilitative measures should be attempted in order to improve rectal sensitivity and synergism between the abdominal wall contraction and pelvic floor relaxation.

Psychological disturbances

When symptoms of constipation are believed to be caused by, or associated with, psychosocial conditions, the patient may require psychological counselling.

The presence of a psychological disorder should be suspected when patients deny bowel emptying, when complaints are not proportional to the objective finding of the functional tests, when abdominal pain or bloating or defaecatory disturbances are continuous, unrelated to bowel emptying and do not improve irrespectively of treatment.

Psychological support is also needed in those patients with eating behaviour disorders.

Drug treatment

Although the long-term treatment of chronic constipation with oral or

rectal laxatives is generally discouraged, there are conditions for which their continued use is necessary:

- 1] patients who need to avoid straining (cardiac disease etc)
- 2] patients not responding to other conservative treatments and for whom surgery is not possible
- 3] patients with cognitive or physical impairment which interferes with self-toileting.

Both stimulant and osmotic laxatives facilitate evacuation by softening stool consistency and/or speeding bowel transit. Laxatives must be chosen bearing in mind possible side-effects, patient compliance and long-term efficacy. Prescription is aimed at obtaining adequate voiding of the bowel, preventing colo-rectal impaction, without causing diarrhoea and other side-effects, which are rarely reported³⁴. Of the available stimulant laxatives, it may be recommended to use the non absorbable type in order to lessen the risk of side-effects. Stimulant and/or hyperosmotic laxatives should be administered 2-3 times/week; however, their effect may wear off in the long-term treatment. Non-purging daily dose (125-500 ml) of isoosmotic PEG electrolyte balanced solutions can profitably be used for long-term treatment since the therapeutic efficacy is maintained with few side-effects³⁴.

Prokinetic drugs such as cisapride that increase motor activity of the colon, may be useful in children³⁶ and in patients with constipation-predominant irritable bowel syndrome^{37,38}. More recently 5HT₄-agonists³⁹⁻⁴² (Tegaserod, Prucalopride) and CCK-antagonists⁴³ have been reported to improve bowel habits as well other symptoms in constipated patients.

REFERENCES

1. Thompson WG, Longstreth GF, Drossman DA, et al. *Functional bowel disorders and functional pain*. Gut 1999;45(Suppl II):II43-II47.
2. Corazziari E, Bausano G, Torsoli A et al. *Italian cooperative study on chronic constipation*. In: Wienbeck M, editor. Motility of digestive tract. New York: Raven Press; 1982;523-5.

3. Everhart JE, Go VLW, Johannes RS, et al. *A longitudinal survey of self-reported bowel habits in the United States*. Dig Dis Sci 1989;34:1153-62.
4. Thompson WG, Heaton KW. *Functional bowel disorders in apparently healthy people*. Gastroenterology 1980;79:283-8.
5. Whitehead WE, Drinkwater D, Cheskin LJ, et al. *Constipation in the elderly living at home. Definition, prevalence and relationship to life style and health status* J Am Geriatr. Soc 1989;37:423-9.
6. Corazziari E, Matera E, Bausano G, et al. *Laxative consumption in chronic nonorganic constipation*. J Clin Gastroenterol 1987;9:427-30.
7. Martelli H, Devroede G, Arhan P, Duguay C. *Mechanisms of idiopathic constipation: outlet obstruction*. Gastroenterology 1978;75:623-31.
8. Drossman DA, Li Z, Andruzzi E, et al. *U.S. householder survey of functional gastrointestinal disorders. Prevalence, sociodemography, and health impact*. Dig Dis Sci 1993; 38:1569-80.
9. Corazziari E, Staiano E, Greco L and SIGEP. *Italian national survey on bowel frequency and anorectal disorders in children*. Gastroenterology 1994;106:A481.
10. Glia A, Lindberg G. *Quality of life in patients with different types of functional constipation*. Scand J Gastroenterol 1997;32:1083-9.
11. Pace F, Molteni G, Bollani S, et al. *Psychological state, life events and quality of life in patients with inflammatory bowel disease or irritable bowel syndrome*. NeUroGastroenterologia; 1998; 4 (Suppl):88.
12. Bellman MM. *Studies on encopresis*. Acta Paed Scand 1996; 56(Suppl 170):1-151.
13. Federici A, Mangia M, Bausano G. *Indagine di prevalenza sulla stipsi e il dolore addominale ricorrente nei bambini in età scolare*. NeUroGastroenterologia 1999,4:132-8.
14. Whitehead WE, Chaussade S, Corazziari E, Kumar D. *Report of an international workshop on management of constipation*. Gastroenterol Int 1991;4:99-113.
15. Wald A, Hinds JP, Caruana B. *Psychological and physiological characteristics of patients with severe idiopathic constipation*. Gastroenterology 1983;97:932-7.
16. Wald A, Whitehead WE. *AGA technical review on anorectal testing techniques*. Gastroenterology 1999;116:735-60.
17. Corazziari E, Dani S, Pozzessere C, et al. *Colonic segmental transit time in non-organic constipation*. Rend Gastroenterol 1975;7:67-9.
18. Wald A, Caruana BJ, Freimainis MG, et al. *Contributions of evacuation proctography and anorectal manometry to evaluation of adults with constipation and defecatory difficult*. Dig Dis Sci 1990;35:481-7.
19. Jorge JMN, Wexner SD, Ger GC, et al. *Cinedefecography and electromyography in the diagnosis of non-relaxing puborectalis syndrome*. Dis Colon Rectum 1993;36:668-76.

20. Badiali D, Corazziari E, Habib FI, et al. *The effect of wheat bran in the treatment of chronic non-organic constipation. A double-blind controlled trial.* Dig Dis Sci 1995;40:349-56.
21. Cadau G, Pallotta N, Badiali D, Corazziari E. *L'impiego degli antidepressivi triciclici a basso dosaggio nel trattamento dei disturbi funzionali del tratto gastrointestinale superiore e inferiore.* NeUroGastroenterologia 1998;4:16-20.
22. Costa E, Biondi M, Badiali D, et al. *Caso Clinico. Stipsi cronica: reale, fittizia o simulata? Diagnosi con misurazione in cieco dei tempi di transito.* NeUroGastroenterologia 1997, 3:114-7.
23. Wexner SD, Daniel N, Jagelman DG. *Colectomy for constipation: physiologic investigation is the key to success.* Dis Colon Rectum 1991;34:851-6.
24. Krogh K, Laurberg S. *Malone antegrade continence enema for faecal incontinence and constipation in adults.* Br J Surg 1998;85:974-7.
25. Gerharz EW, Vik V, Webb G, et al. *The value of MACE (Malone antegrade colonic enema) procedure in adult patients.* J Am Coll Surg 1997;185:544-7.
26. Puxty JA, Fox RA. *Golytely: a new approach to fecal impaction in old age.* Age Ageing 1986;15:182-4.
27. Tolia V, Lin CH, Elitsur Y. *A prospective randomized study with mineral oil and lavage solution for treatment of fecal impaction in children.* Aliment Pharmacol Ther 1993;7:523-9.
28. Ferguson A, Culbert H, Gillet H, Barras N. *New PEG/electrolyte solution for the treatment of constipation and fecal impaction.* Ital J Gastroenterol Hepatol 1999; (in press).
29. Cucchiara S, Coremans G, Staiano A, et al. *Gastrointestinal transit time and anorectal manometry in children with fecal soiling.* J Pediatr Gastroenterol Nutr 1984;3:545-50.
30. Loening-Baucke V. *Constipation in children.* In: MA Kamm and JJ Lennard-Jones editors, Constipation. Petersfield (UK) and Bristol (USA), Wrightson Biomedical Publishing LTD; 1994;361-8
31. Kuijpers HC, Bleienberg G, De Moiree H. *The spastic pelvic floor syndrome. Large bowel outlet obstruction caused by pelvic floor dysfunction: a radiologic study.* Int J Colorectal Dis 1986;1:44-8.
32. Rao SSC, Kimberly DW, Retta EP. *Effects of biofeedback therapy on anorectal function in obstructive defecation.* Dig Dis Sci 1997;42:2197-205.
33. Corazziari E, Badiali E, Habib FI, et al. *Small volume isosmotic PEG electrolyte balanced solution in the treatment of chronic non-organic constipation.* Dig Dis Sci 1996; 41:1636-42.
34. Müller-Lissner SA. *Adverse effects of laxatives: fact and fiction.* Pharmacology 1993;47 (Suppl 1):138-45.

35. Corazziari E, Badiali D, Bazzocchi G, et al. *Long-term efficacy, safety and tolerability of low daily doses of isosmotic PEG electrolyte solution (PMF-100) in the treatment of functional chronic constipation.* Gastroenterology 1999;116:A976.
36. Staiano A, Cucchiara S, Andreotti MR, et al. *Effect of cisapride on chronic idiopathic constipation in children.* Dig Dis Sci 1991;36:733-6.
37. Müller-Lissner SA and the Bavarian Constipation Study Group. *Treatment of chronic constipation with cisapride and placebo.* Gut 1987;28:1033-8.
38. Van Outryve M, Milo R, Toussaint J, Van Eeghem P. *"Prokinetic" treatment of constipation-predominant irritable bowel syndrome: a placebo-controlled study of cisapride.* J Clin Gastroenterol 1991; 3:49- 57.
39. Langaker KJ, Morris D, Pruitt R. et al. *The partial 5-HT₄ agonist (HTF 919) improves symptoms in constipation-predominant Irritable Bowel Syndrome (C-IBS).* Digestion 1998;59:S3.
40. Lefkowitz MP, Rüegg P, Shi Y, Dunger-Baldauf C. *Relief of overall GI symptoms and abdominal pain and discomfort as outcome measure in clinical trials of irritable bowel syndrome with HTF 919.* Gastroenterology 1999;116:A1027.
41. Miner PB Jr, Nichols T, Silvers DR, et al. *The efficacy and safety of Prucalopride in patients with chronic constipation.* Gastroenterology 1999;116:A1043.
42. Felt-Bersma RJF, Bouchoucha M, Wurzer H, et al. *Effects of a new enterokinetic drug, Pricalopride, on symptoms of patients with chronic constipation: a double-blind, placebo - controlled, multicenter study in Europe.* Gastroenterology 1999;116:A992.
43. D'Amato M, Whorwell PJ, Thompson DG, et al. *The CCK-A receptor-antagonist dexloxigumide in the treatment of IBS.* Gastroenterology 1999; 116:A981.

ADDRESS FOR CORRESPONDENCE

CORAZZIARI E, MD

Dipartimento di Scienze Cliniche
Clinica Medica II
Policlinico Umberto I
00161 Roma Italia
Fax: +39 06 49382437
E-mail: anemgi@mclink.it