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Original Research Article

Physician understanding and preferences on the current management and treatment approaches for chronic constipation: a cross-sectional survey-based study

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ABSTRACT

Background: Chronic constipation is a prevalent gastrointestinal (GI) motility disorder. To date, there is a lack of real-world evidence on the current treatment approaches and patterns in the management of chronic constipation in India.
Methods: We administered a cross-sectional, physical and digital-based survey between May 2021 and November 2021 to experienced gastroenterologists from different zones of India whose practices encompass direct care of patients with chronic constipation. The questionnaire included 30 close-ended questions on qualitative aspects of constipation management, with specific focus on physicians' experience with efficacy, tolerability and compliance of Duphalac bulk, a combination of soluble fibers and lactulose. Responses of survey participants were summarized and analyzed using descriptive statistics. All analyses were performed using SPSS 25.0.
Results: The survey was completed by 195 respondents, of which, 81.5% of physicians preferred osmotic laxatives plus fibers for the management of chronic constipation. Soluble fibers are the preferred choice of physicians (84.6%) over insoluble fibers and lactulose plus soluble fibers was the most preferred in the management of constipation symptoms. The efficacy, tolerability and compliance of Duphalac® bulk were found to be highly satisfactory.
Conclusions: In this survey, key practice-relevant information on the current treatment approaches related to the management of chronic constipation from Indian were garnered. The use of soluble fibers was found to be preferred over insoluble fibers, and the clinical profile of a combination formulation of soluble fibers and lactulose was found to be extremely satisfactory among the survey population.

Keywords: Chronic constipation, Laxatives, Soluble fibers

INTRODUCTION

Chronic constipation (CC) is a common problem in Indian communities and in gastroenterological practice.[1,2] It is characterized by dissatisfied defecation associated with infrequent stools, strain while passing stool or both.[3] Results from a meta-analysis of 45 community-based studies indicated the global prevalence of CC at 14%.[4] CC is a common presenting problem among women and older individuals that causes worsening of patients' quality of life (QoL) and consumes extensive healthcare resources.[5-9] In spite of the scarcity of data in India, published literature indicates CC to be a common health problem in India, with a population prevalence ranging from 2.6% to 24.8%.[10-12]

The Rome criteria, which provide a clinical definition of constipation based on objective and subjective clinical symptoms, is the gold standard for the diagnosis of CC. These criteria have been revised several times since their

introduction in 1994 as Rome I criteria.[13,14] The characteristics of two commonly identified symptoms such as infrequent and hard lumpy stools are fundamental to major current consensus-derived definitions of constipation including Rome III criteria and the American college of gastroenterology chronic constipation task force.[13,15] In spite of this established criteria, it is believed that there are important potential differences in terms of patient perception and self-management, dietary practices, intestinal physiology, health-care infrastructure and management of CC in India as compared to western countries.[16-18] With the publication of the latest Rome IV criteria, investigative and therapeutic approaches toward management of CC from an Indian perspective are of growing interest to clinicians.[19,20] Furthermore, it has been evident that the health burden related to CC has been comparable to other prevalent serious conditions like hypertension and type 2 diabetes mellitus and mandates the implementation of an effective treatment strategy for the management of CC.[21,22]

The vast majority of patients with CC are treated with non-operative methods that include lifestyle modification, pharmacotherapy and biofeedback therapy. The current consensus-based practice guidelines from India recommend lifestyle modification and osmotic laxatives (grade A recommendation) as the initial treatment for CC.[23] Lifestyle changes, consisting of sufficient fiber intake (20-30 g/day), adequate fluid intake (1.5-2 l/day), physical activity, and avoiding constipation causing foods and medications are advised as the first line of treatment.[19,24] Pharmacotherapy is indicated when lifestyle changes do not show promising results. Laxatives such as bulk laxatives, osmotic agents and others remain a primary treatment option of constipation.[24,25] Despite the large amount of data concerning the prevalence of constipation and its association with age and gender, there is a poor evidence base on the frequent use of laxatives among constipation sufferers. Existing literature supports the fact that soluble fibers possess beneficial properties that help modulate bowel functions, improve defecation frequency and stool consistency.[4] However, better understanding of the pathophysiology of CC and information in terms of efficacy, tolerability and compliance of pharmacological agents can help optimal management and aid physicians in the treatment of CC symptoms. This study analyzed the current management and treatment preferences among physicians in the Indian setting, with a noted focus on the efficacy, tolerability, and compliance of a combination laxative containing soluble fibers and lactulose in chronically constipated patients.

METHODS

Survey design and participants

This descriptive cross-sectional survey was carried out between May 2021 and November 2021. Participants included gastroenterologists with more than 5 years of experience in the management of patients with CC in various healthcare facilities from different geographical zones (North, South, East, West and Central) of India. As per local legislation and national guidelines, this survey did not involve any intervention or direct participation of a patient, hence ethical approval by an independent ethics review board was not required. However, informed consent was obtained from all participating physicians, and physician confidentiality and anonymity were maintained throughout the survey conduct.

Data collection

The questionnaire contained 30 close-ended questions to determine practical management strategies for CC and current approaches toward its treatment among participants (Table 1). Survey responses were confidential, and identifying information was not revealed. Responses to questionnaires were considered as the consent to participation. Data collection was accomplished using a physical booklet/digitally-administered structured questionnaire based on information obtained from the literature. Only survey data report forms (DRFs) containing pooled (aggregate) patient data that could not be identified with an individual or other physician data were collected.

Data analysis

The data gathered were summarized using counts/percentages, as appropriate. The process of data quality check, along with query resolution was carried out. Data analysis was performed post data lock approval. The rank data was calculated by the weighted linear combination method, in which for each question, the most preferred choice as an answer can be determined. Data were analyzed using SPSS software version 25.0 (IBM Corp., Armonk, NY, USA) and Microsoft Excel (Microsoft Corporation 2019).

RESULTS

Frequency of CC and consultations in clinical practice

During the study interval, a total of 195 physicians completed the questionnaire. Majority of the physicians (58%) reported that 20-30% of the patients visit their clinical settings with CC as the chief symptom. With regards to identifying factors associated with CC, around 54.4% physicians claimed that constipation was associated with dietary habits or was a medication-related comorbidity in >20% of their patients, while 48.7% reported that pelvic floor dysfunction is the cause in <5% of patients. In all, 48.7% of physicians affirmatively answered that irritable bowel syndrome was associated with CC in 10%-30% of their patients, while 34.4% accounted for the same in 30-50% of patients (Table 2).

Table 1: Survey questionnaire.

Q. no.	Questions			
Q1	What percentage of patients present with constipation as a symptom?			
	a) <20%	b) 20%-30%	c) >30%	
Q2	What percentage of patients present with constipation associated with dietary habits (inadequate fiber intake)?			
	a) <10%	b) 10%-20%	c) >20%	
Q3	What percentage of patients present with constipation associated with medication-related comorbidity?			
	a) <10%	b) 10%-20%	c) >20%	
Q4	What percentage of patients present with pelvic floor dysfunction?			
	a) <5%	b) 5%-10%	c) >10%	
Q5	What is the percentage of patients who have irritable bowel syndrome associated constipation?			
	a) <10%	b) 10%-30%	c) 30%-50%	d) >50%
Q6	What is the percentage of patients who present with more than 2 symptoms of constipation?			
	a) <10%	b) 10%-30%	c) 30%-50%	d) >50%
Q7	Which is the most common symptom a constipation patient presents with in your clinical practice? (Choose all applicable options)			
	a) Straining	b) Hard or lumpy stools	c) Incomplete evacuation	d) Infrequent defecation
Q8	How long do patients suffer from constipation symptoms before they consult you?			
	a) <1 week	b) 1-2 weeks	c) > 1 month	d) 2-3 months
Q9	What is the percentage of patients who come with previous consultation to a physician?			
	a) <10%	b) 10%-30%	c) 30%-50%	d) >50%
Q10	What is the percentage of patients who have tried a laxative prior to consultation to help reduce constipation symptoms?			
	a) <10%	b) 10%-30%	c) 30%-50%	d) >50%
Q11	What is the most commonly tried laxative by your patients before they consult you?			
	a) Osmotic laxative	b) Fiber	c) Stimulant laxative	d) Others_____
Q12	What is the general approach in managing patients with chronic constipation?			
	a) Monotherapy	b) Osmotic laxative + fiber	c) Lifestyle modification	
Q13	How much fiber should adults consume each day?			
	a) 15-20 g	b) 25-38 g	c) 35-50 g	d) 50-75 g
Q14	Rank the following based on your preference to help reduce constipation symptoms? (Mention as 1-6: 1 being highest and 6 being lowest)			
	Treatment		Rank (1-6)	
	Lactulose+soluble fibers Lactitol+isapgula Lactulose Lactitol Sennosides Isapgula Others _____			
Q15	In what percentage of your patients with chronic constipation symptoms do you prescribe monotherapy?			
	a) <20%	b) 20%-40%	c) 40%-60%	d) >60%
Q16	In what percentage of your patients with chronic constipation symptoms do you prescribe combination of osmotic laxative and fiber?			
	a) <20%	b) 20%-40%	c) 40%-60%	d) >60%
Q17	What is the most common age group where lactulose + fiber combination is prescribed? (Choose all the applicable options)			
	a) <20 years	b) 20-40 years	c) 40-60 years	d) >60 years e) Irrespective of age
Q18	Are there any comorbid conditions where you prefer lactulose + fiber combination to help reduce constipation symptoms? (Choose all the applicable options)			
	a) Diabetes	b) Hypertension	c) Renal dysfunction	d) Hypercholesterolemia e) CVD f) No conditions
Q19	What is the average duration for which a patient with chronic constipation is prescribed a laxative			

Continued.

Q. no.	Questions				
	monotherapy/combination?				
	a) <2 weeks	b) 2-4 weeks	c) 1-3 months	d) >3 months	
Q20	Which fibers would you prefer to help reduce constipation symptoms?				
	a) Soluble fibers		b) Insoluble fibers		
Q21	What are the most common complaints associated with insoluble fibers?				
	a) Bloating	b) Non-palatability	c) Stomach cramps	d) Others_____	
Q22	Based on your experience, does non palatability with insoluble fibers lead to non-compliance to therapy to help reduce constipation symptoms?				
	a) Yes		b) No		
Q23	How would you rate the efficacy of Duphalac bulk to help reduce constipation symptoms?				
	a) Excellent	b) Good	c) Intermediate	d) Poor	e) Very poor
Q24	How would you rate the tolerability of Duphalac bulk to help reduce constipation symptoms				
	a) Excellent	b) Good	c) Intermediate	d) Poor	e) Very poor
Q25	How would you rate the patient compliance with Duphalac bulk (ready to drink format) to help reduce constipation symptoms?				
	a) Excellent	b) Good	c) Intermediate	d) Poor	e) Very poor
Q26	Based on your clinical experience, have patients complained about bloating and flatulence with Duphalac bulk?				
	a) Yes		b) No		
Q27	What according to you are the advantages of soluble fiber over insoluble fiber? (Choose all applicable options)				
	a) Patient compliance	b) Less bloating	c) Stomach cramps		
	d) All the above	e) No advantages	f) Others		
Q28	Would you prefer soluble fibers with additional benefits like improvement in lipid and glucose levels?				
	a) Yes		b) No		
Q29	Would you prefer soluble fibers with additional benefits like increase in mineral absorption?				
	a) Yes		b) No		
Q30	Do you feel Duphalac bulk has better palatability as compared to conventional insoluble fibers?				
	a) Yes		b) No		

More than half of the physicians (52.8%) reported that patients were suffering from CC for >1 month before visiting for a consultation, 46.2% claimed that 30%-50% of their patients presented with more than 2 symptoms of constipation, and 34.9% claimed that 30%-50% of their patients had previously consulted a physician for the management of their condition. Incomplete evacuation (82.6%) followed by straining (54.9%), hard lumpy stools (50.8%), and infrequent defecation (42.1%) were recognized as some of the most common symptoms of CC (Table 2).

Self-management of constipation before consultation

In many instances, patients may have been taking laxatives in an attempt to self-manage their constipation before consulting a physician. However, failures are frequent in the self-management of constipation which results in additional costs. In the context of evaluating self-management of constipation, (33.3% of physicians reported that >50% of their patients have tried a laxative prior to consultation. Physicians found fiber to be the most commonly tried laxatives (39.0%), followed by osmotic laxatives (31.8%) and stimulant laxative (29.2%).

Management of CC in clinical settings

With regard to the general approach toward managing patients with CC, 81.5% of physicians in this survey preferred osmotic laxatives plus fibers (Table 3). Majority of the physicians (84.6%) preferred soluble fibers over insoluble fibers to help reduce constipation symptoms. Half of the physicians (50.8%) believed that 25-35 grams of fiber should be consumed by patients each day.

Nearly half the physicians (48.2%) were of the opinion that advantages of soluble fibers over insoluble fibers include patient compliance, less bloating, and fewer stomach cramps. The major complaint that physicians encountered in association with the insoluble fibers was bloating (74.9%), followed by non-palatability (21.0%) and stomach cramps (4.1%). Furthermore, 84.6% physicians agreed that non-palatability with insoluble fibers leads to non-compliance to therapy. Majority of the physicians preferred soluble fibers with additional benefits like improvement in lipid and glucose levels (91.8%) or increase in mineral absorption (88.7%) (Table 3).

Table 2: Frequency of CC and consultation for CC in Indian clinical practice.

Response, (n=195)	N (%)
% of patients with constipation as the chief symptom	
<20	27 (13.9)
20%-30	113 (57.9)
>30	55 (28.2)
% of patients with IBS-associated constipation	
<10	9 (4.6)
10%-30	95 (48.7)
30%-50	67 (34.4)
>50	24 (12.3)
% of patients with more than 2 symptoms of constipation	
<10	9 (4.6)
10%-30	81 (41.5)
30%-50	90 (46.2)
>50	15 (7.7)
Most common symptoms of constipation	
Straining	107 (54.9)
Hard or lumpy stools	99 (50.8)
Incomplete evacuation	161 (82.6)
Infrequent defecation	82 (42.1)
Duration of suffering from constipation before consultation	
1-2 weeks	26 (13.3)
>1 month	103 (52.8)
2-3 months	66 (33.8)
% of patients with previous consultation history	
<10	14 (7.2)
10%-30	65 (33.3)
30%-50	68 (34.9)
>50	48 (24.6)

CC, chronic constipation; IBS, irritable bowel syndrome.

Table 3: Management of CC and advocacy of fibers for CC in Indian clinical setting.

Response, (n=195)	N (%)
General approach to managing chronic constipation	
LSM	5 (2.6)
Monotherapy	31 (15.9)
Osmotic laxative+fiber	159 (81.5)
Amount of fiber consumed by patients per day (g)	
15-20	55 (28.2)
25-35	99 (50.8)
35-50	33 (16.9)
50-75	8 (4.1)
Advantages of soluble fibers over insoluble fibers	
Patient compliance	84 (43.1)
Stomach cramps	20 (10.3)
Less bloating	77 (39.5)
All the above	94 (48.2)
Preference for soluble fibers due to benefits like improvement in lipid and glucose levels	
Yes	179 (91.8)
No	16 (8.2)
Preference for soluble fibers due to benefits like increase in mineral absorption	
Yes	173 (88.7)
No	22 (11.3)

CC, chronic constipation; LSM, lifestyle modification.

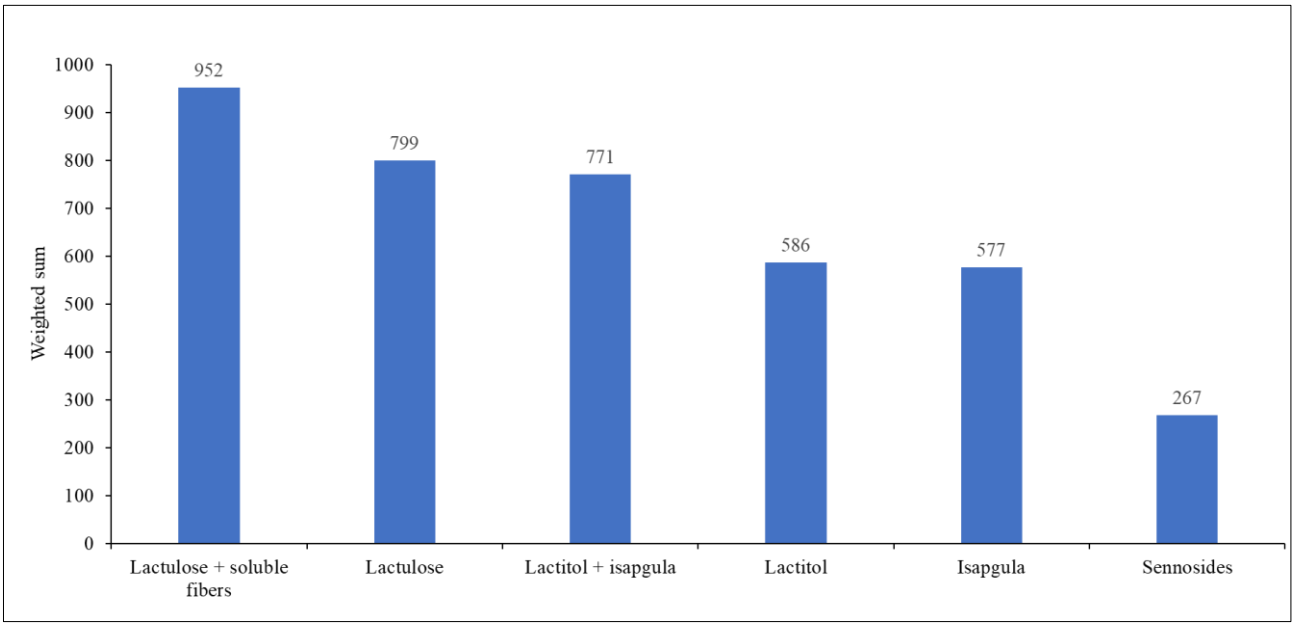

Figure 1: Ranking of laxatives by physicians.

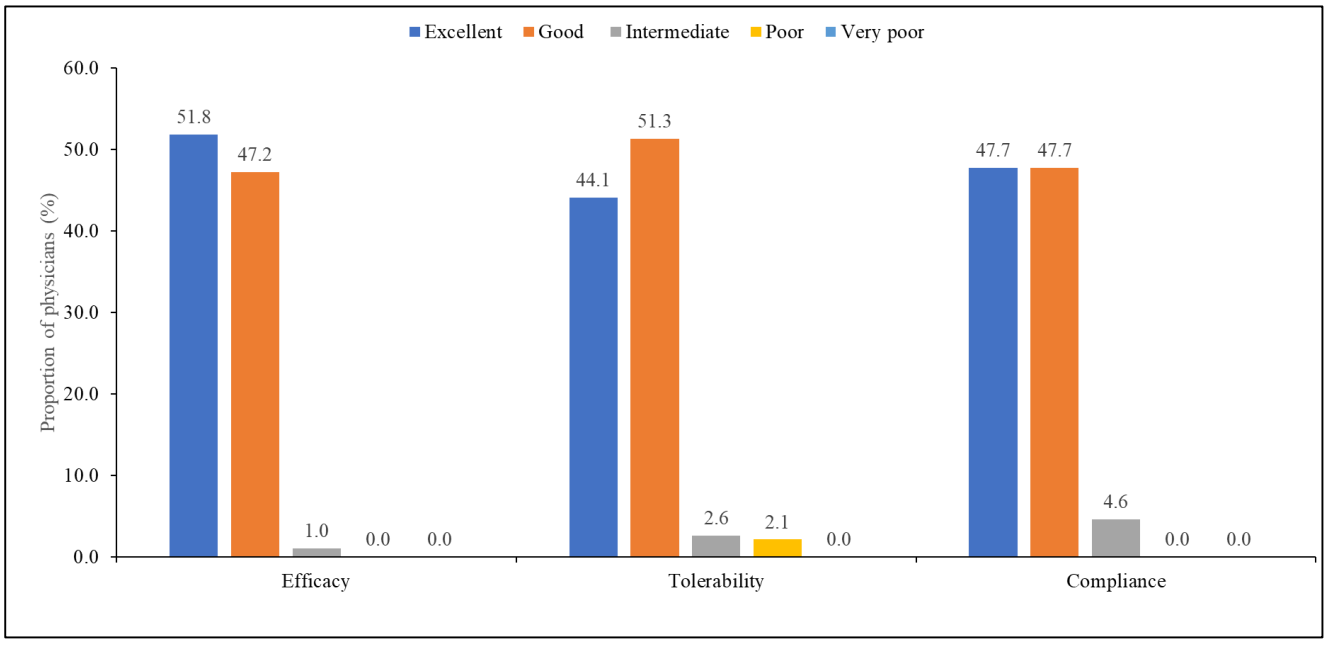

Figure 2: Physicians' perspectives on the efficacy, tolerability, and compliance of Duphalac bulk.

Role of laxatives in treatment of CC

Physicians ranked various laxatives as per their preference. Lactulose+soluble fibers was the most preferred in the management of constipation symptoms, while sennosides were the least preferred (Figure 1). In all, 42.1% physicians in our survey reported that they prescribed a combination of osmotic laxative and fiber in 40-60% of patients, and 55.4 physicians claimed that they prescribed it in the age group of 40-60 years.

For patients with comorbid conditions, lactulose+fiber combination was preferred to help reduce constipation symptoms in patients with diabetes, cardiovascular disease, hypercholesterolemia and hypertension by 70.8%, 44.6%, 36.4% and 39.0% of physicians, respectively.

Efficacy, tolerability and compliance of Duphalac bulk

The efficacy, tolerability and compliance of Duphalac bulk, a combination of 10 g lactulose and 8.1 g soluble fibers (wheat dextrin 3.5 g+fructo-oligosaccharides 2.5 g+polydextrose 2.1 g) were reported to be excellent or good by 99.0%, 95.4% and 95.4% physicians, respectively (Figure 2). Majority of the physicians (85.1%) reported that none of their patients complained about bloating and flatulence with Duphalac bulk, almost all the participating physicians (99.5%) favored Duphalac bulk over conventional insoluble fibers due to better palatability.

DISCUSSION

This survey pan-India survey is the first of its kind to understand the preferences of experienced gastroenterologists on the current treatment approaches in the management of CC. CC is the most common GI condition prevailing in the community that can severely hamper QoL of patients.[26] One population-based study from India found the prevalence of constipation according to the Rome II criteria to be 16.8% and that of self-reported constipation to be 24.8%; however, the true prevalence of constipation in the larger Indian population is still debatable due to lack of a uniform definition of constipation.[12] Taking the Indian published literature on the prevalence of CC into account, it is not surprising that majority of the physicians in our study reported the prevalence rate of CC to range from 20% to 30% in their respective practices.

Despite the lack of data to support the notion that diet and lifestyle modifications can improve CC, it is widely accepted and recommended by experts as first-line therapy.[27,28] Studies have indicated that a reduced intake of fibers and water or liquids are the common causes of CC. In accordance with this recommendation, the majority of physicians in this study opined that dietary habits and use of certain medicines were associated with the presence of CC. In addition, incomplete evacuation followed by straining were the most common complaints noted in our survey results, which is consistent with the evidence that reported the inability to pass stool as the most prevailing symptom of CC in 98.3% of the study population.[29]

To improve constipation management in community and clinical settings, knowledge on the utilization of laxative use is crucial. Laxatives remain the primary treatment option for CC. Despite their common usage, their potential impact upon day-to-day symptoms of constipation is often overlooked. In a study determining the effect of the use of laxatives, the authors concluded that chronically constipated patients were not just using vast varieties of laxatives but also various combinations of laxatives.[30] In line with these findings, majority of our survey participants reported that >50% of the patients visiting their settings used laxatives as an attempt to self-manage CC symptoms in the first instance.

In our study, majority of the physicians ranked lactulose plus soluble fibers as the most preferred choice of laxatives followed by lactitol plus isapgula and isapgula. In a consensus statement based on 10 gastroenterologists, experts recommended lactulose as an effective treatment in patients with CC (level B evidence), with a suggested starting dose of 15 ml to 30 ml orally once a day.[27] In addition, existing studies have noted that diets with soluble fiber can be associated with the improvement in global symptoms, straining, pain on defecation, and stool consistency in patients with CC.[4,31] In line with this evidence, majority of physicians in this survey suggested osmotic laxative plus fiber as a preferred approach for the treatment of CC. Furthermore, 84.6% of physicians favored soluble fibers over insoluble fibers in the management of CC. Soluble fibers have emerged as a more effective and convenient means of improving symptoms and QoL in patients with CC. Available evidence indicates that soluble fibers, such as wheat dextrin, ferment to form short-chain fatty acids, which help to improve laxation, increase the absorption of calcium and minerals, stimulate pancreatic insulin release and improve glycemic indices, and suppress serum levels of low-density lipoprotein cholesterol.[32,33] Likewise, polydextrose, which is a synthetic, partially fermentable, soluble fiber has been found to stimulate intestinal peristalsis, increase fecal bulk, and stool frequency.[34,35] Similarly, several studies have demonstrated that fructo-oligosaccharides that exhibit soluble-fiber properties can significantly increase frequency of defecation and facilitate colonic transit time without significant side effects.[36,37] In this context, an encouraging part of the present study is that the efficacy, tolerability and compliance of Duphalac bulk were reported to be highly satisfactory among the survey physicians. It is also worthy to note that, according to the respondents, patients did not report experiencing bloating or flatulence when using Duphalac bulk, and therefore, it could be better tolerated in the treatment of constipation.

Our study had certain limitations. The questionnaire utilized in this survey was administered digitally where there is a chance of skipping responses deliberately or inadvertently by the participants, as a result of survey fatigue. Furthermore, the mode of data collection via digital questionnaire may have carried the risk of recall bias or contamination by participants.

CONCLUSION

This survey provides an overview of the current understanding and treatment approaches related to the management of CC among experienced gastroenterologists from different zones of India. Majority of physicians preferred osmotic laxative plus fiber in the management of CC, and furthermore, preferred soluble fibers over insoluble fibers.

A combination of lactulose plus soluble fibers is preferred in reducing constipation symptoms. Duphalac bulk, which is a combination of lactulose and wheat dextrin, polydextrose, fructo-oligosaccharide soluble fibers, was found to be highly satisfactory in terms of its efficacy, tolerability and compliance in the treatment of CC.

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REFERENCES

1. Camilleri M, Ford AC, Mawe GM, Dinning PG, Rao SS, Chey WD, et al. Chronic constipation. Nat Rev Dis Primers. 2017;3:17095.
2. Ghoshal UC. Chronic constipation in Rome IV era: the indian perspective. Indian J Gastroenterol. 2017;36(3):163-73.
3. Basilisco G, Coletta M. Chronic constipation: a critical review. Dig Liver Dis. 2013;45(11):886-93.
4. Suares NC, Ford AC. Prevalence of, and risk factors for, chronic idiopathic constipation in the community: systematic review and meta-analysis. Am J Gastroenterol. 2011;106(9):1582-91.
5. Moezi P, Salehi A, Molavi H, Poustchi H, Gandomkar A, Imanieh MH, et al. Prevalence of chronic constipation and its associated factors in pars COHORT study: a study of 9000 adults in Southern Iran. Middle East J Dig Dis. 2018;10(2):75-83.
6. Neri L, Basilisco G, Corazziari E, Stanghellini V, Bassotti G, Bellini M, et al. Constipation severity is associated with productivity losses and healthcare utilization in patients with chronic constipation. United European Gastroenterol J. 2014;2(2):138-47.
7. Wald A, Scarpignato C, Kamm MA, Mueller-Lissner S, Helfrich I, Schuijt C, et al. The burden of constipation on quality of life: results of a multinational survey. Aliment Pharmacol Ther. 2007;26(2):227-36.
8. Everhart JE, Ruhl CE. Burden of digestive diseases in the United States part II: lower gastrointestinal diseases. Gastroenterology. 2009;136(3):741-54.
9. Gálvez C, Garrigues V, Ortiz V, Ponce M, Nos P, Ponce J. Healthcare seeking for constipation: a population-based survey in the Mediterranean area of Spain. Aliment Pharmacol Ther. 2006;24(2):421-8.
10. Panigrahi MK, Kar SK, Singh SP, Ghoshal UC. Defecation frequency and stool form in a coastal eastern Indian population. J Neurogastroenterol Motil. 2013;19(3):374-80.
11. Kasthuri A, Hegde SK, Joseph MA, Rao DP, Gomez G, Sahu A. Prevalence of constipation among elderly in a rural area of Bangalore. Indian J Res Rep Med Sci. 2013;3:1.
12. Rajput M, Saini SK. Prevalence of constipation among the general population: a community-based survey from India. Gastroenterol Nurs. 2014;37(6):425-9.
13. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders. Gastroenterology. 2006;130(5):1480-91.
14. Drossman DA. The functional gastrointestinal disorders and the Rome III process. Gastroenterology. 2006;130(5):1377-90.
15. American College of Gastroenterology Chronic Constipation Task Force. An evidence-based approach to the management of chronic constipation in North America. Am J Gastroenterol. 2005;100(1):1-4.
16. Tandon RK, Prasad N, Gupta MC, Tandon BN. Stool weights and transit time in North Indians. J Assoc Physicians India. 1976;24(12):807-10.
17. Singh N, Makharia GK, Joshi YK. Dietary survey and total dietary fiber intake in patients with irritable bowel syndrome attending a tertiary referral hospital. Indian J Gastroenterol. 2008;27(2):66-70.
18. Babu J, Kumar S, Babu P, Prasad JH, Ghoshal UC. Frequency of lactose malabsorption among healthy southern and northern Indian populations by genetic analysis and lactose hydrogen breath and tolerance tests. Am J Clin Nutr. 2010;91(1):140-6.
19. Mearin F, Lacy BE, Chang L, Chey WD, Lembo AJ, Simren M, et al. Bowel disorders. Gastroenterology. 2016:6(16):222-5.
20. Gwee KA, Lu CL, Ghoshal UC. Epidemiology of irritable bowel syndrome in Asia: something old, something new, something borrowed. J Gastroenterol Hepatol. 2009;24(10):1601-7.
21. Wald A, Scarpignato C, Kamm MA, Mueller-Lissner S, Helfrich I, Schuijt C, et al. The burden of constipation on quality of life: results of a multinational survey. Aliment Pharmacol Ther. 2007;26(2):227-36.
22. Tomita T, Kazumori K, Baba K, Zhao X, Chen Y, Miwa H. Impact of chronic constipation on health-related quality of life and work productivity in Japan. J Gastroenterol Hepatol. 2021;36(6):1529-37.
23. Ghoshal UC, Sachdeva S, Pratap N. Indian consensus on chronic constipation in adults: A joint position statement of the Indian Motility and Functional Diseases Association and the Indian Society of Gastroenterology. Indian J Gastroenterol. 2018;37(6):526-44.
24. Serra J, Mascort-Roca J, Marzo-Castillejo M, Aros SD, Ferrándiz Santos J, Rubio E, et al. Clinical practice guidelines for the management of constipation in adults. Part 2: diagnosis and

treatment. Gastroenterol Hepatol. 2017;40(4):303-16.
25. Portalatin M, Winstead N. Medical management of constipation. Clin Colon Rectal Surg. 2012;25(1):12-9.
26. Johanson JF, Kralstein J. Chronic constipation: a survey of the patient perspective. Aliment Pharmacol Ther. 2007;25(5):599-608.
27. Paré P, Bridges R, Champion MC, Ganguli SC, Gray JR, Irvine EJ, et al. Recommendations on chronic constipation (including constipation associated with irritable bowel syndrome) treatment. Can J Gastroenterol. 2007;21:3-22.
28. Camilleri M, Bharucha AE. Behavioural and new pharmacological treatments for constipation: getting the balance right. Gut. 2010;59(9):1288-96.
29. Wahab P, Yusoff D, Kadir A, Ali SH, Yeh L. Prevalence, symptoms, and associated factors of chronic constipation among older adults in North-East of Peninsular Malaysia. Clin Nurs Res. 2022;31(2):348-55.
30. Dinning PG, Hunt L, Lubowski DZ, Kalantar JS, Cook IJ, Jones MP. The impact of laxative use upon symptoms in patients with proven slow transit constipation. BMC Gastroenterol. 2011;11:121.
31. Suares NC, Ford AC. Systematic review: the effects of fibre in the management of chronic idiopathic constipation. Aliment Pharmacol Ther. 2011;33(8):895-901.
32. Mineo H, Hashizume Y, Hanaki Y, Murata K, Maeda H, Onaga T, et al. Chemical specificity of short-chain fatty acids in stimulating insulin and glucagon secretion in sheep. Am J Physiol. 1994;267:234-41.
33. Anderson JW, Gilinsky NH, Deakins DA, Smith SF, O'Neal DS, Dillon DW, et al. Lipid responses of hypercholesterolemic men to oat-bran and wheat-bran intake. Am J Clin Nutr. 1991;54(4):678-83.
34. Hengst C, Ptok S, Roessler A, Fechner A, Jahreis G. Effects of polydextrose supplementation on different faecal parameters in healthy volunteers. Int J Food Sci Nutr. 2009;60(5):96-105.
35. Shimada M, Nagano N, Goto S, Ito K, Tsutsui T, Ando T, et al. Effect of polydextrose intake on constipation in Japanese dialysis patients: A triple-blind, randomized, controlled trial. J Nutr Sci Vitaminol (Tokyo). 2015;61:345-53.
36. Yen CH, Kuo YW, Tseng YH, Lee MC, Chen HL. Beneficial effects of fructo-oligosaccharides supplementation on fecal bifidobacteria and index of peroxidation status in constipated nursing-home residents--a placebo-controlled, diet-controlled trial. Nutrition. 2011;27:323-8.
37. Chen HL, Lu YH, Lin JJ, Ko LY. Effects of isomalto-oligosaccharides on bowel functions and indicators of nutritional status in constipated elderly men. J Am Coll Nutr. 2001;20:44-9.

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