

Scoring Systems in Evaluation of Constipation and Obstructed Defecation Syndrome (ODS).

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Abstract: One of the most common disorders of defecation is constipation. Constipation is the term used to describe a constellation of symptoms like infrequent, incomplete, difficult, or prolonged evacuation or to describe stools that are too small, too hard, or too difficult to pass. However, many patients are more obsessed by the associated nonspecific symptoms of bloating, abdominal or pelvic pain and nausea. A key issue for clinical practice and research is the assessment and measurement of constipation. After the introduction of various medical and surgical modalities for treatment of constipation, the objective evaluation of constipation in terms of diagnosis, assessing severity, laying down the criteria for intervention, postoperative follow up and comparison of different techniques has become mandatory.

INTRODUCTION

Constipation is a subjective symptom that can be related to a multitude of factors, including dietary, psychological, cultural, anatomic, and functional aspects. In addition, constipation is still surrounded by misconceptions and taboos that hamper an objective evaluation and encourage self-medication that is not always innocuous to the patient care. Constipation is a problem that affects between 2% and 27% of the world's population and is responsible for not only symptoms and disorders that create discomfort and morbidity, but also and especially for the high social costs imposed for health care. The definitions of constipation used by physicians include: a) Unspecific self-reported symptoms, b) Stool frequency of less than three bowel movements per week, c) Whole gut transit time of more than 68 hours. The absence of firm criteria for the diagnosis of digestive functional disorders—the availability and application of which are essential in both clinical practice and for epidemiologic and clinical research—led a group of experts in the 1980s to create committees for establishing consensus on the criteria used to diagnose these problems.¹ These were known as the Rome criteria. In 1999, the criteria were modified on the basis of new knowledge gained, and they are now referred to as the Rome II criteria.²

The Rome II committee defined functional constipation as occurrence of 2 or more of the following symptoms for at least 12 weeks, which need not be consecutive, in the preceding 12 months and in the absence of structural and biochemical explanation. The Rome II criteria for the diagnosis of chronic constipation differ from the Rome I criteria in that they incorporate two new symptoms to identify individuals with obstructed defecation: anal blockage and manual maneuvers to defecate. In addition, the new criteria exclude subjects presenting with loose stool episodes and irritable bowel syndrome. The Rome III criteria (2006) were an update on Rome II and it added some points to the existing criteria: a) loose stools are rarely present without the use of Laxatives and b) there are insufficient criteria for IBS. These criteria must be fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis.³

It has been observed by various researchers that the prevalence of constipation differs when different criteria are used. Hence to bring uniformity in clinical trials and epidemiological studies across the world Rome criteria are used. With the advent of various surgical procedures and biofeedback therapy the clinicians and researchers required new tools for objective evaluation of severity of disease and comparison of different treatment protocols offered to the patient. As the constipation itself is associated the many conditions, to bring

uniformity in evaluation several scoring systems were introduced. In 1980's and 90's a various subtypes of functional constipation were placed under the blanket of Idiopathic constipation and hence all the types were assessed on similar parameters for severity. These constipation scores may stand obsolete today with diagnosis of different subtypes on basis of clinical, physiological and radiological tests but can help us to understand the evolution of scoring systems used today.

SCORING SYSTEMS USED IN CLINICAL TRIALS ACROSS THE GLOBE

a) The Constipation Assessment Scale

The Constipation Assessment Scale (CAS) by McShane and McLane⁴ is an eight-item self-report measure designed to assess the presence and severity of constipation in cancer patients taking opioids or vinca alkaloids and pregnancy. Eight characteristics were included in the initial evaluation of the CAS: abdominal distention or bloating, change in the amount of gas passed rectally, less frequent bowel movements, oozing liquid stool, rectal fullness or pressure, rectal pain with bowel movements, small volume of stool and inability to pass stool. A three-point summated rating scale was constructed (0=no problem, 1=some problem, 2=severe problem). A total score is calculated that can range from 0 (no constipation) to 16 (severe constipation). Each item is rated based on the patients' experience with each characteristic in the previous week. A score of ≥ 1 indicates constipation. No cut-off score was provided.⁵

b) Constipation Scoring System/1996 Cleveland clinic score/ Wexner/ Agachan Score

A subjective constipation score was calculated based on a detailed questionnaire that included over 100 constipation-related symptoms. Based on the questionnaire, scores ranged from 0 to 30, with 0 indicating normal and 30 indicating severe constipation. The constipation score was then compared with the objective findings of the physiology tests, which include colonic transit time (CTT), anal manometry (AM), cinedefecography (CD), and electromyography (EMG).⁶

The Constipation Scoring System (CSS), a commonly used scoring system, is designed to assess the prevalence and severity of constipation. It is based on pathophysiological definition of constipation. The scoring system is based on eight variables

(frequency of bowel movements; difficult or painful evacuation; completeness of evacuation; abdominal pain; time per attempt; type of assistance including laxatives; digitations or enemas; number of unsuccessful attempts at evacuation in a 24-h period and duration of constipation). The CSS consists of seven items that are scored using a five-point Likert scale that ranges from 0 (none of the time) to 4 (all of the time) and one item that is rated on a 0–2 scale. A total score can range from 0 (normal) to 30 (severe constipation). A cut-off score of 15 suggests constipation

c) Symptom Severity Score

This score consists of nine parameters including need laxatives/enemas, unsuccessful attempts to open bowels, low frequency of bowel movements, pain on opening bowels, bleeding on bowel opening, incomplete bowel opening, increased time or straining to open bowels, incontinence/soiling, difficulty to withstand urge to open bowels which are graded on a scale of 0–4 with a maximum score of 36. This severity score has been used in all major clinical trials including NIH, NICE, European STARR registry.⁷

d) Patient Assessment of Constipation-Symptom

The Patient Assessment of Constipation – Symptom (PAC-SYM) was developed to assess symptom frequency and severity of chronic constipation. This 12-item self-report measure is divided into three symptom subscales (i.e. abdominal, rectal and stool). Items are scored on a four-point Likert scale, with 4 indicating the worst symptom severity. A total score for the PAC-SYM can range from 0 to 48. No cut-off score has been reported.⁸

e) Patient Assessment of Constipation-Quality of Life Questionnaire (PAC-QoL)

PAC-QoL is a self-reported questionnaire, was used to measure the quality of life of patients.⁹ The validated PAC-QoL is composed of 28 items grouped into four subscales: physical discomfort, psychosocial discomfort, worries and concerns, and satisfaction. The first three subscales are used to assess the patient dissatisfaction index, with an overall score ranging from 0 to 96 (where lower scores correspond to better quality of life). The satisfaction subscale includes four items with a global score ranging from 0 to 16, so that each patient's self-reported definitive outcome is defined as either poor (0–4), fairly good (5–8), good (9–12), or excellent (13–16).

f) Visual Scale Analog Questionnaire

The Visual Scale Analog Questionnaire (VSAQ) is a five-item tool designed to assess the frequency and severity of constipation symptoms.¹⁰ Two of the five VSAQ items, stool consistency and straining, are rated on a Likert scale that ranges from 1 to 5. Three items, presence of constipation, duration of constipation, incomplete evacuation, are rated on a 0–10 scale. A score of ≥ 3 on the 0–10 scale is the cut-off score for constipation. This differs from Visual Analog Scale which is used to assess patient satisfaction after surgery on a scale of 1–10 with high scores representing higher satisfaction.

g) Garrigues Questionnaire

The Garrigues Questionnaire (GQ) is a 21-item self-report measure that was developed to define the presence of chronic constipation.¹¹ Only 13 of the 21 items are related to bowel habits. The Rome I and Rome II criteria were used to define constipation. The items are scored using two different four-point Likert scales. The first consisted of 'never', 'sometimes' (<25% of the time), 'often' ($\geq 25\%$ of the time)

and 'always'. The second consisted of 'never', 'fewer than once a week', 'one or more times a week' and 'every day'. Total and cut-off scores were not reported.

In 1991, Pemberton demonstrated the importance in differentiating between slow transit constipation and pelvic floor dysfunctions. Thus, although the success rate of surgery for constipation was high in that series, the authors cautioned against performing such surgery in patients with irritable bowel syndrome. Subsequently, they classified 184 patients in the study into one of the aforementioned groups based on psychological distress and colorectal symptoms. After a thorough evaluation, the authors were unable to assign significance to correlation between symptoms and type of constipation. With the understanding of underlying pathophysiology of constipation and hence newer modalities to treat different subtypes of constipation especially ODS Knowles Eccersley Scott, Wexner and Longo developed different scoring systems which were validated and subsequently modified. Most of the clinical trials for treatment of ODS using various techniques including STARR, Contour Trans STARR, Biofeedback therapy are using these scoring systems.

h) Chinese Constipation Questionnaire

The Chinese Constipation Questionnaire (CCQ) is a six-item self-report measure designed to diagnose functional constipation in Chinese participants.¹² This scale consists of six items with four subscales: bowel function, stool and rectal symptoms, laxative use and abdominal symptoms. A composite score is generated by principal components analysis with a cut-off score of ≥ 5 being able to discriminate between controls and constipated patients with both a sensitivity and specificity of 91%. This scoring system is more commonly used in oriental countries.

i) Knowles Eccersley Scott Symptom Score

The Knowles Eccersley Scott Symptom (KESS) is an 11-item tool for diagnosis of constipation. KESS has an added advantage of differentiating between various subtypes of constipation. The authors acknowledged that constipation is a poorly defined clinical symptom, but did not provide a definition of constipation. This omission makes evaluation of content validity nearly impossible. The KESS uses four- to five-point Likert scales that are scored on an unweighted linear integer scale. Total scores can range from 0 (no symptoms) to 39 (high symptom severity). A cut-off score of ≥ 11 indicates constipation.¹³

Interestingly, developers of the CSS and KESS attempted to identify the subtypes of constipation more from a clinical than a mechanistic perspective. In contrast, the developers of the CAS provided a clear definition of constipation and used it to develop the instrument. The CCQ, PAC-SYM and VSAQ were developed using the Rome II criteria whereas the developers of the GQ used both the Rome I and Rome II criteria.

j) Longo scoring systems for ODS

Obstructed defecation Syndrome (ODS) is an emerging and challenging clinical problem described by normal desire to defecate with impaired ability to evacuate contents from the rectum. This new entity has been a subject of debate with Gastroenterologists and Colorectal surgeons during last decade. The condition is being treated with dietary fiber, biofeedback techniques using different modalities and surgical interventions like Rectopexy and Stapled Trans Anal Rectal Resection (STARR). A new scoring system was given by Italian surgeon A. Longo who also devised STARR procedure for treatment of ODS to correlate the symptoms with

objective physiological findings and to allow uniformity in assessment of its severity.¹⁴

Original Longo score (0-40) is a 8 point scale (Defecation frequency, Straining, Sensation of incomplete evacuation, Recto/perineal pain/discomfort, Activity reduction per week, Laxatives, Enemas, Digitation).¹⁵ Recently Longo modified this scoring system and added a lifestyle change parameter to seven symptom based parameters. Currently Modified ODS (MODS) Longo score is the most commonly used scoring system to decide treatment strategy for ODS patients as well as to see percent and total change in ODS symptom score from baseline after intervention in short term and long term follow up trials at various intervals. Some authors have taken 9 as cut off score for intervention in ODS patients while others have taken 7 as cut off point. There is no consensus till date on cut off score.

DISCUSSION

Constipation is a common gastrointestinal disorder more commonly affecting elderly and females. Constipation is generally defined as having hard stools, infrequent stools (typically fewer than three per week), the need for excessive straining, a sense of incomplete bowel evacuation, and excessive time spent on the toilet or in unsuccessful defecation. The incidence and prevalence of constipation varies across the globe depending upon the criteria used for defining constipation.¹¹ To bring out uniformity in diagnosis of gastrointestinal disorders Rome criteria were laid down in 1992 which were further modified in 1999 and 2006.^{1,2,3} The classification of constipation into various subtypes has evolved over last two decades taking into account better understanding of its pathophysiology. Committee for Functional Gastrointestinal disorders (FGID) has laid down the criteria for diagnosing various subtypes of constipation including anismus and slow transit constipation. The scoring systems for constipation were introduced in 1990's to assess the severity of constipation and are being used in follow up trials of treatment for constipation. Longo in late 1990's described a new entity Obstructed Defecation Syndrome for the patients who had an urge to expel the fecal bolus but were unable to do so. He not only devised the methodology and instrument for treatment of ODS but also laid down criteria for intervention based on ODS Longo scoring system. He further modified this scoring system by adding a lifestyle change parameter to seven symptom-based parameters. Current clinical significance of these scoring systems lies in the fact that they are used to assess the efficacy of new surgical procedures like STARR. Some authors have given a cut off for STARR procedure based on Modified ODS Longo score but controversy still exists. In spite of the fact that STARR procedure as described by Longo is the most commonly performed procedure for ODS, Wexner / Agachan Score is still used in almost all clinical trials throughout the world in follow up trails. In recent past, a consensus conference of European group of 11 experts "STARR Pioneers, gave an algorithm of treatment options in patients suffering from ODS in Gouvieux, France in 2006.¹⁶ The controversy still exists in terms of which scoring system is best for defining the severity of constipation and ODS.

CONCLUSION

The assessment of constipation using self-report measures is complex and difficult. No perfect measure is currently available to evaluate constipation and ODS. It has been agreed by most authors that Rome III criteria can help in the objective evaluation of constipation but neither can differentiate between various subtypes of constipation nor assess the severity of various subtypes. Scoring systems can help

Table 1: Rome II Criteria for constipation

Rome II Criteria for Constipation	
Straining $\geq 1/4$ of defecation	
Lumpy or hard stools $\geq 1/4$ of defecation	
Sensation of incomplete defecation $\geq 1/4$ of defecation	
Sensation of anorectal obstruction/blockage $\geq 1/4$ of defecation	
Manual maneuvers to facilitate $\geq 1/4$ of defecation (digital evacuation, support of pelvic floor etc.)	
Less than three defecations per week	

Table 2: Modified ODS Longo Score

Questions and response options	Scores			
	0	1	2	3
Medication to evacuate (enemas or suppositories)	0	1	2	3
Difficulties to evacuate	0	1	2	3
Digitation to evacuate	0	1	2	3
Return to toilet to evacuate	0	1	2	3
Feeling of incomplete evacuation	0	1	2	3
Straining to evacuate	0	1	2	3
Time needed to evacuate	0	1	2	3
Lifestyle alteration	0	1	2	3

Each point is scored according to frequency of the symptom. Questions 1-6: 0 = never, 1 = less than once weekly, 2 = 1-6 times weekly, 3 = every day; question 7: 0 = less than 5 min, 1 = 6-10 min, 2 = 11-20 min, 3 = more than 20 min; question 8: 0 = no alteration of lifestyle, 1 = mild alteration, 2 = moderate alteration, and 3 = significant alteration of lifestyle. The total score is in the range of 0 (best) to 24

the caregivers to plan the treatment strategies bases on the cut off score. Without a cut-off score, it is difficult to use a measure for treatment decisions and outcome evaluation. The scoring system for the KESS is rather complicated, which may limit its clinical utility. Wexner/ Agachan Score and Modified Longo Score are the best available tools till date to assess the severity of ODS. The additional research is warranted to refine or develop a more comprehensive self-report measure to evaluate ODS. A measure is needed that evaluates the complex constellation of symptoms that constipation encompasses as well as differentiate between various subtypes of constipation and also assess their severity. This will not only facilitate research on epidemiology and management of constipation but as well compare different techniques in an objective manner.

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