CLINICAL STUDY

Constipation as a defecation disorders: What do we expect from the physiologic tests?

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Abstract: *Background:* Constipation is often associated with some clinical signs as hard stool, incomplete defecation, chronic straining, and abdominal pain and long stays in bathroom. Some diagnostic uncertainties came from functional and structural variations of the anorectum and the assessment from few imaging procedures, which were thought as the best but could not always give the expected result. Then physiologic tests were required to be used. The aim was to study which physiologic test correlated to the clinical symptoms, was valuable and have to be performed in the patients with chronic constipation in this series.
Methods: One hundred twenty-seven patients (56.3 % females; mean age, 56.7) with chronic constipation according to the Rome II criteria were initially treated by dietary change and increased physical activation. The unresponsive (80) patients were instructed to be evaluated by the physiologic tests (anal manometry, defecography, colonic transit time-CTT) and clinical symptoms. The assessments from physiologic tests, which were originated from 4 distinctive categories, were investigated by factor analysis. ROC curve analysis was used to take involved assessments, which had a big impact on the constipation status.
Results: 80 patients, mostly female (89 %), had experienced several symptoms in 11.9 years. The CCT, scoring system, evacuation problem, hard stool, habitual laxative use and digital assist for defecation were significantly different in 17 factors originated from different categories. We analyzed the extracted factor, which had an important effect on the constipation and consequently considered the necessary physiologic test and other related symptoms.
Conclusions: Scoring system, CTT, anal manometry and other physiologic tests are important to establish a true diagnosis of the etiology of the constipation. However, defecography and clinical symptoms are the factors, which has a great impact on the diagnosis of constipation *(Tab. 7, Ref. 25)*. Full Text in free PDF *www.bmj.sk*.
Key words: constipation, irritable bowel syndrome, defecation, colonic transit time.

Constipation is often associated with some clinical signs as hard stool, incomplete defecation, chronic straining, and abdominal pain and long stays in bathroom. It characterizes several genito-urinary symptoms occasionally. Such disorders could be seen in each age. However, it is more frequent in females and related to elderly. The symptoms and the pelvic topographic alterations seen in defecation disorders give various indispensable pathophysiologic factors, for which the patients should undergo surgery. Nonetheless, at the end of a surgical procedure, the outcome is not always impressive.

The pelvic region has three functional states which, can be summarized with three axis perineal evaluation (TAPE); gynecological axis, urologic axis, and coloproctologic axis, which represent an anatomic margin of subspecialties (1). Such differences limit pelvic structures and the organs, which have very close correlation for embryogenic, neuroanatomic and functional basis. It is difficult to consider a failure of one of three sections as unbounded from the others. An operation performed to correct a defect in any region can cause symptoms in the other region. Considering the TAPE, an ideal situation has a normal shape, which is hexagonal and made by 3 different axes (2). An ideal anatomic and functional understanding of the anorectum and pelvic floor, and a precise analysis are necessary for a correct diagnosis and therapeutic procedure.

Some diagnostic uncertainties came from functional and structural variations of the anorectum and the assessment from few imaging procedures, which were thought as the best but could not always give the expected result. Then physiologic tests were required to be used. The aim was to study which physiologic test correlated to the clinical symptoms, was valuable and have to be performed in the patients with chronic constipation in this series.

Methods

Out of a hundred twenty-seven patients with constipation and related symptoms, 80 were prospectively included in the study. Patients were evaluated for the diseases causing a predisposition to constipation and the use of potential constipating drug.

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Tab. 1. Rome II criteria for diagnosis of chronic functional constipation.

Chronic functional constipation

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1) Straining during >25 % of defecation
2) Lumpy or hard stools for >25 % of bowel movement
3) Sensation of incomplete evacuation for >25 % of bowel movement
4) Sensation of anorectal blockade for >25 % of bowel movement
5) Manual maneuvers to facilitate >25 % of bowel movement (e.g. digital support)
6) <3 defecation per week
   a) Loose stools not present and unsatisfactory status for irritable bowel syndrome

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Two or more of the criteria above for at least 3 months (not necessarily consecutive)in the predicting a year

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A careful abdominal, perineal and rectal examination was performed. The clinical assessment was collected using a distinctive questionnaire filled out by either gastroroenterologist or colorectal surgeon, which consisted of questions about duration of symptoms, interval between the bowel movements, feeling of need to defecation, straining, hard stool, incomplete evacuation, sense of obstructed defecation, abdominal pain and bloating, irregular constipation, necessity of digital support to defecate, constipation history and use of laxatives and enemas. Patients' clinical characteristic was evaluated in accordance to the Rome II criteria (Tab. 1) (3). Colonoscopy and biochemical tests (such as thyroid hormones, glycemia, and calcemia) had been done to rule out the secondary causes of constipation (tumors, diverticulosis, diabetes, hypothyroidism and hyperparathyroidism).

The constipated patient with anal fissure and stricture requiring a previous surgery and mega rectum was excluded. Patients using drugs for mental and neurologic diseases (antipsychotic, tricycles antidepressants, and calcium channel blockers) were also excluded. Forty-seven individuals, not included in the study, have restored their defecation habits to near normal level since they ingested high fiber diet (45–50 g/day), a minimum 2 L water/day and increased their physical activity in 60 days at least.

At the beginning of this study, each patient had been instructed to perform the physiologic tests. They were confined into 3 different types. The transit time for the colon was evaluated in general neurologic transmission of the bowel as megakolon or adult Hirschprung disease. Anal manometry was the other test, which related to the sphincter mechanism's function. The last one was the defecography, which was used to display a relation to the obstructed defecation.

Colonic transit time (CTT) was accomplished according to the modified technique (4) which consisted in ingestion of a capsule with 20 radiopaque markers on day 1 and an abdominal plain X-ray was taken 3rd, 5th and 7th day. Those markers were made from a cut-down catheter (Braun Inc. 16 Fr) after cutting a part in a centimeter each. Retention of 5 or more markers in an isolated colonic segment was considered abnormal. Transit in hours at the right, left and rectosigmoid colon was calculated by adding all markers displayed in those region on days 5 and 7. No enemas, suppositories and laxatives were allowed during the completion of the test. The following diagnostic groups were considered, 1) when CTT was less than 63–65 hours it was accepted as normal colonic transit, 2) when the markers were isolated rectosigmoid delay or related rectosigmoid and left colonic delay, it was considered as pelvic floor dysfunction, 3) it was accepted as a colonic inertia when there was a right colonic delay (5).

Anorectal manometry (AM) was carried out the eight-channel water perfusion system catheter using both the pull-through and stationary technique (AMS water-perfused anorectal manometer' OH, US), which was connected to the electronic manometer system and the computer made the graphic record. The maximal resting and minimal squeezing pressures, rectoanal inhibitory reflex (RAIR) and balloon evacuation tests had been done for each patient. In addition, a high pressure zone (HPZ) length was also measured in millimeter. A balloon evacuation test was performed asking patient to push down a balloon having been filled up 50 ml air in 1 minute. The outcome of the patient who got failure to push down the balloon was evaluated with the recorded graph generated AM during the straining. RAIR was also studied on the possibility of the reflex absence in patients with mega-rectum.

Defecography is a dynamic radiologic study about the anorectal function during a stimulated defecation. Starch was mixed with liquid barium to make a semi-fluent paste and was injected into the rectum. Small pad soaked liquid barium was put into an access of vagina. Then, anal orifice was marked using a little amount of paste. In general one hour before the procedure, the patients ingested the liquid barium 200 ml, to evaluate the small bowel loops. Evacuation was observed from the start to the end of straining to defecate, which was expected to consist of the complete rectal contrast evacuation. Anorectal angle, anorectal junction, anal canal length, pelvic descending on the last spot film had been assessed. Minimum 5 spot films were captured to make a decision for any disorder. Diagnostic categories were assessed as pelvic floor muscle dysfunction (spasticity, paradoxical contraction, etc.), rectocele-viscerocele (enterocele, sigmoidocele etc.), rectal prolapse (anterior wall prolapsed, internal prolapse, and external prolapse) and descending perineum.

Clinical symptoms. In clinical aspects, the symptoms of the patients had been evaluated according to the Rome II criteria. The questionnaire for constipation was delivered to each patient before the clinical exam to assess the patient's status with long-lasting straining in the restroom, completeness of defecation, hard stool, abdominal distention, use of laxative and enema, frequency of defecation per week and digital support to defecate. The scoring system are frequently required to assist in effective assessment of extend of constipation. The measuring scoring system required a plain supine abdominal x-ray, which is divided into 4 quadrants, which have been representative of ascending, descending, transverse and rectosigmoid colonic segments respectively. Each quadrant is studied for the amount of stool presented and is scored from 0 to 3. Zero represents the absence of stool and 3

Tab. 2. Clinical and demographic characteristics of the patients.

	Minimum	Maximum	Mean	Std. Deviation
Age (year)	31	88	56.8	11.8
Gender (F/M)	1	2	1.9	0.4
Constipation score	2	12	7.4	3.
CTT (hours)	33	123	69.5	22.1
Anal manomt.				
MRP (mmHg)	11.2	98.4	54.33	18,1
MSP (mmHg)	24.5	258.1	106.4	42
RAIR (±)	-	+	91 %	
Defecography				
Anal canal length (cm)	1.0	3,7	1.9	0.5
Pelvic descensus in defecogram (cm)	<4 cm	>4.1cm	4.8	1.9
Balloon evacuation (±)	-	+	43 %	
ARA in resting	<80©	>95©	103.2©	48©
ARA in squeezing	<80©	>95©	116©	57©
ClinicalSymptoms				
Abdominal distention (±)	-	+	66 %	
Hard stool (±)	-	+	54 %	
The Using Laxatives (±)	-	+	54 %	
Digital support (±)	-	+	23 %	

FISI – Fecal incontinence severity index, ARA – Anorectal ange, CTT – Colonic transit time, RAIR – Rectoanal inhibitory reflex, MRP – Maximal resting pressure, MSP – Minimal squeezing pressure

Tab. 3A and B. Correlation with diagnostic clinical factors, which were ordinal, and nominal values had an impact on constipation.

		t	p	95% Confidence Interval of the Difference	
				Lower	Upper
	Age	-0,584	0,561	-6,880	3,760
	CTT	-3,567	**0,001**	-26,722	-7,577
	Const. Score	-11,306	**0,000**	-6,517	-4,565
Anal	MRP	0,089	0,929	-7,83210	8,56791
manometry	MSP	0,374	0,709	-15,44274	22,58878
Defecography	AC length	-0,031	0,975	-,25566	,24773

		Anal manometry				Defecography			Clinical symptoms			
		Gender	RAIR	ARA in rest	ARA in squeeze	Pelvic descen	Evac.	AC length	Abd disten.	Hard stool	Laxt. use	Digital help
Chi-Square	0,32	0,60	0,27	0,003	0,18	4,28	0,04	2,81	25,83	13,91	6,26	
p		0,752	0,696	0,644	0,992	0,782	**0,042**	0,848	0,100	**0,000**	**0,000**	**0,015**
95% CI	Lower	0,743	0,687	0,634	0,991	0,774	0,038	0,841	0,094	0,000	0,000	0,013
	Upper	0,760	0,705	0,653	0,994	0,790	0,046	0,855	0,106	0,000	0,000	0,018

ARA – Anorectal ange, CTT – Colonic transit time, RAIR – Rectoanal inhibitory reflex, MRP – Maximal resting pressure, MSP – Minimal squeezing pressure, AC – Anal canal, CI – Confidence interval

symbolises entire stool impaction. The scores are summed for each quadrant. The maximum score is 12. A score 7 or more indicates that more aggressive constipation management is necessary (6).

Statistic was used as a descriptive for the clinical characteristics of the patients sample and to describe diagnostic data from the physiologic tests. The correlations between the clinical and demographic characteristics from the outcomes of the tests were determined by using a descriptive analysis for nominal and ordinal data. The outcomes from AM, defecography, scoring system and CTT were also correlated by using the Pearson correlation and the ordinal variables were also correlated by using the Chi-square tests. It has no doubt that some variables have an impact on the diagnosis. To find them out, the factor analysis was performed. To find the minimal factor influencing the constipation status had been clarified by the exploratory factor analysis. The

Tab. 4. Diagnosis of 80 patients with chronic constipation.

The diagnosis of chronic constipation	Frequency	%
Pelvic floor dysfunction	63	78.8
Anismus	*3*	*3.8*
Rectocele	*49*	*61.3*
Internal mucosal prolapse	*5*	*6.3*
Perineal descensus	*11*	*13.8*
Enterocele (sigmoidocele)	*1*	*1.2*
Colonic inertia	2	2.5
Idiopatic	4	5
IBS	11	13.7

IBS – Irritable bowel syndrome

value for each new generated factor, which helped to reduce the number of all factors, had been assessed more than 66 % in the factor loading matrix. To use a principle component analysis, it was required to extract the involved and independent new generated factor and the value for each new one was assessed more than 80 %. The ROC curve analysis had been employed for each extracted factor, then they were all assessed according to the traditional academic point system. The results were analyzed using the SPSS for windows version 15.0 (SPSS, Chicago, IL), and a significance intensity as p = 0.05 (2 sided) was taken for all the tests done.

Results

Seventy-one of 80 patients were female (about 89 %). The mean age was 56.7 ± 11.8 years. The duration of symptoms was 11.9 (3–27) years. The clinical and demographic characteristics of the patients had been stated in Table 2. The most declared clinical symptoms were the abdominal distention, hard stool and using laxatives more than one time a day (Tab. 2). Out of the 127, 47 individual admitted in the surgical outpatient clinic revealed a good response to dietary change and physical activation such as a life style changing. Those were assessed neither chronic functional constipation nor irritable bowel syndrome in accordance to the Rome II criteria (Tab. 1).

Physiologic tests were performed in all patients who did not respond to the life style changing. Defecography and CTT was the common test used in the study. In the patients with chronic constipation, the outcomes of the physiologic tests were displayed in Table 3, which were compared by the statistical methods. The several different outcomes from 4 distinct categories of the test (demographics and independent physiologic test as CTT and scoring system, the outcomes of the anal manometry and defecography, and clinical symptoms) had been evaluated. Some of them, as constipation score (p < 0.001), CTT (p = 0.001) and difficulty in evacuation (p = 0.042) and various clinical symptoms in the Table 3A-B had demonstrated a statistical significance. The distinctions show how a decision about the constipation status was made, which diagnostic test was able to analyze the constipation. The others except those mentioned above did not facilitate the diagnosis but the clinical symptoms were always elucidative for each patient with chronic constipation.

Out of the 80 patient with chronic constipation, pelvic floor dysfunction had been diagnosed in 63 (78.8 %). The patients with rectocele were the large proportion of the series (61.3 %). Enterocele and colonic inertia were the least one (Tab. 4).

Tab. 5. Principle factor loading matrix based on the analysis of the patient's constipation status.

Factors impacted constipation	Exploratory factor analysis (>66 %)						
% of variance	1 (17 %)	2 (12.2 %)	3 (11.7 %)	4 (11.2 %)	5 (10.9 %)	6 (7.7 %)	7 (7.2 %)
Age	*0.658*	-0.165	-0.294	-0.261	0.282	0.130	0.004
Gender	0.239	-0.123	*0.822*	-0.031	0.115	0.120	0.059
Constipation score	-0.071	*0.773*	-0.037	-0.122	-0.165	0.253	-0.165
CTT	0.000	*0.711*	0.046	0.355	-0.088	-0.163	-0.144
Anal manom.							
MRP	*-0.748*	0.156	0.267	0.253	0.200	0.124	0.023
MSP	-0.723	0.335	0.137	0.072	0.291	-0.122	0.009
RAIR	-0.409	-0.339	-0.125	0.257	-0.431	0.081	0.474
Defecogram							
ARA in rest	*0.654*	0.365	0.172	0.332	-0.081	-0.160	0.333
ARA in squeeze	0.399	0.247	0.214	0.637	-0.199	-0.062	0.139
Evacuation	0.035	0.121	-0.303	0.261	*0.686*	-0.124	0.474
AC length	-0.188	0.367	*-0.808*	0.200	0.084	-0.005	-0.132
Clinicalsymptoms							
Abd. distention	-0.099	-0.231	0.251	0.221	0.313	0.735	0.062
Digital support	0.175	*0.658*	0.464	-0.145	0.239	-0.105	-0.207
Hard stool	-0.209	0.626	-0.209	-0.193	-0.121	0.509	0.200
Laxatives use	0.151	0.418	0.071	-0.426	-0.346	0.111	0.405

ARA – Anorectal ange, CTT – Colonic transit time, RAIR – Rectoanal inhibitory reflex, MRP – Maximal resting pressure, MSP – Minimal squeezing pressure, AC – Anal canal

Tab. 6. The accurate factors were extracted by using the principle component analysis only cases for which patient's constipation status (the variance explained criteria >80 % at least).

	Initial	Extraction
Age	1.000	0.712
Gender	1.000	0.781
Constipation score	1.000	0.738
CTT	1.000	0.689
Anal manomt		
MRP	1.000	0.776
MSP	1.000	0.758
RAIR	1.000	0.782
Defecography		
ARA in rest	1.000	*0.844*
ARA in squeeze	1.000	0.735
Pelvic descensus	1.000	0.782
Evacuation	1.000	*0.887*
Anal canal length	1.000	*0.888*
Clinical symptoms		
Abdominal distention	1.000	*0.818*
Hard stool	1.000	*0.830*
FISI	1.000	0.740
Laxative use	1.000	0.680
Digital support to defecate	1.000	*0.810*

Tab. 7. The extracted factors were able to be analyzed.

	Area under curve	Std. Error	p	95% CI	
				Lower	Upper
Constipation score	0.912	0.040	0.000	.834	.990
Laxative use	0.712	0.060	0.001	.595	.828
Hard stool	0.788	0.054	0.000	.683	.893
Evacuation	0.369	0.064	0.046	.244	.494
CTT	0.693	0.062	0.003	.572	.814

Several factors have been impacting the patients with constipation and related symptoms. In this series we used 17 different factors from demographics, anal manometry, diagnostic defecography and clinical symptoms, which were related mostly to anal canal function, colonic passage and patients characteristics in order to diagnose the basis of the constipation status. The factors have been displayed in the Table 5 and listed under 4 groups. To extract the accurate new factors related to the constipation was the main goal. The principle factor loading matrix based on the analysis for patient's constipation status was performed. The exploratory factor analysis was done based on the perfect factor's loadings, which were more than 66 % of value in the matrix. Seven accurate factors had been extracted from the matrix by using both the Scree plot and percentage of the variance, which was from 7.2 % to 17 %. At the end of the analysis, 5 specific and independent recently generated factors had been explored by using the variance explained criteria, which had the assessment of more than 80 % at least for each (Tab. 6). The new 5 independent factors were mostly organized in the diagnostic defecography and the clinical symptoms. In accordance to that

extraction, such factors as abdominal distention, hard stool and digital support for defecation, and the ability to evacuate, anorectal angle (ARA) in resting condition and anal canal length in the diagnostic defecography had been assessed, which had a great impact on the investigative decision that was necessary for any patient complaining of chronic constipation. As the end, the ROC curve analysis had been applied to make a decision on the value of the 5 extracted factors. Those were assessed that had the p values less than 0,005 and the fair and excellent area, which was under the main plot, in accordance with the traditional academic point system except the one, which had the p value statistically significant (Tab. 7).

Discussion

The status of constipation is not clear (7, 8). In various studies, several criteria have been utilized in order to classify the patient. The clinical symptoms and physiologic tests should be used to define the some type of constipation and related symptoms such as an imperfect diet and life style habits from the others such as IBS, anismus and anotomic functional disorders (8, 9). The diagnosis and proper treatment of constipation and related symptoms, which failed in primary and secondary centers, has been performed in tertiary medical centers. In those centers, the individual seeking advice for chronic constipation will commonly get as many diagnosis as the number of physician consulted. The recommended treatment changed at every call of the physician and every change of doctors, may relieve, but never cures. Because constipation is not a disease, it is a symptom that is found in many diseases. To try to treat constipation alone would be to ignore the cause; it would be similar to take care of a fecal incontinence without giving thought to an obstetric injury. To categorize patients in order to improve homogeneity and enhance, the therapeutic algorithms Rome criteria was well employed and patients presenting with constipation can be classified as having constipation-predominant IBS or functional constipation, while those with functional constipation may be considered as having a slow transit disorder or a functional defecation disorder (10). Anorectal physiology has demonstrated irregularities, which may be important in the pathogenesis of such disorders. Evacuation mechanism or sphincter mechanism may not work. Moreover, propulsive waves of the colon and its frequency and amplitudes would have been abnormal in the patients with idiopathic constipation (11). In those patients, a reduced relaxation of internal anal sphincter, increased defecatory sensation threshold and a higher maximum rectal endurance may be seen (12, 13). Otherwise, functional constipation is commonly classified as slow transit or outlet obstruction. Functional constipation is described by paradoxical contraction or inadequate relaxation of the pelvic floor muscles during the attempted defecation (dyssinergic defecation) or inadequate propulsive waves during the attempted defecation (inadequate defecatory propulsion) (14). Colonic propulsive power is the other important factor for any one wishing to make defecation. Weakness of the colonic propulsion results in constipation with colonic inertia.

In literature, the intervention of physiologic tests to define the etiologic diagnosis of constipation varies from 50 % to 92 % (7, 15–17). Difficulties in studying the etiology of constipation came out partly from the inconsistency in the literature due to the specificity of investigations performed in specialized centers (18). The studies may reflect a bias with motility abnormalities such as IBS having being referred usually by the former (15, 17, 18) or, in recent years, evidence of the pelvic floor muscles and anorectal disorders as main reasons of the constipation (7, 8, 16). Physiologic tests are necessary to make an accurate diagnosis for anyone with constipation and related symptoms. The primary goal of the tests is to rule out a secondary cause of constipation. Those show significant diagnostic results, which are merely artefact. In the Rao's study, the patients with functional defecation disorders had been discriminated from controls using the factors of perineal descent, anorectal location at rest and anal resting pressures (19). In this study, we try to find the proper way to make the patient categorized in the correct group. We use 17 factors, which had impact on the constipation status from 4 distinctive groups of physiologic tests. It was thought that 17 factors are too much to reach the main or few important causes of the constipation. To make the factor analysis, extracted minimum number of recent generated factors from physiologic tests, which had a great impact on constipation condition referred to the tertiary center, had been planned. The outcomes showed us 17 factors, which came directly from the physiologic tests and were reduced to 6 factors, which came from the physiologic test and clinical symptoms. However, the scoring system used for patients (p = *0.001)*, CTT (p < *0.001)*, the ability of defecation demonstrated by the spots of defecography (p = 0.042) had been found statistically significant in the correlation analysis among the involved factors. They did not assess a valuable involved factor, which should be present in each patient to be diagnosed truly. The description of clinical symptoms of constipation for each patient was found to be very important, which stated in the Rome criteria. But the symptoms did not represent the Rome criteria precisely. Otherwise they symbolized some common complaints such as an abdominal distention, digital support to defecate and hard stool. However, when the series was re-evaluated it was showed that more than 70 % of patients had pelvic floor dysfunction (rectocele, anismus and internal mucosal prolapse). When the extracted factors had been analyzed, they were strongly related to the clinical situation, which was the reason why the factors did not match to those mentioned in the Rao's study above[7].

There are a lot of scoring systems specific for assessing constipation severity in the literature (6, 20–22). Few have been successful to discriminate the type of constipation. Scoring system originated by Bruera, which was validated and easy to use, has a good and instructive correlation to evaluate seriousness of constipation. The scoring system has been suggested to be reproducible in the assessment of the amount of stool in the colon (6). However, there is no standard value for the "normal" amount of stool in the colon (23, 24). The abdominal plain radiograph is accurate to allow a faster diagnosis for constipation. The finding alone in the plain radiograph may not be associated with a higher constipation score and clinical consequence. In the study we displayed that each score from 7 to12 demonstrated the importance of constipation in increasing value while consisting of clinical characteristics according to Rome II criteria. We found the scoring system significantly related to the constipation status, but the scoring system had not been exposed as extracted factor, which made an impact on constipation. That was evaluated the patients with rectocele who were the large portion of the series with scores more than 7.

Abdominal distention, incomplete evacuation, use of laxative, and digital help to make defecation were the important clinical symptoms in order to classify the constipation status. In the series of abdominal distention, hard stool and digital help for defecation had been found the symptoms, which were mainly involved to extract the related factors. The complaining on hard stool, normal or near normal CTT was a common finding in the patients with IBS and imperfect diet and life style. CTT was longer in pelvic floor dysfunction, colonic inertia and idiopathic constipation than that was the accepted normalized time, which was consistent with the emphasized pathology. However, the CTT measurement was not able to confirm the exact pathology of the chronic constipation (pelvic floor dysfunction or colonic inertia). That failure had been reported before in literature (15, 25). That was the reason why we instructed patients to proceed to defecography. Defecography has been considered very useful to identify the causes of constipation due to pelvic floor dysfunction in patients with chronic constipation in opposing to clinical history, the outcomes of anal manometry and/ or CTT.

In the study it had been stated that all patients with chronic constipation refractory to initial dietary and activity management, prefer taking the physiologic tests. That situation may be debatable because of the costs of investigation and the time lasting. This study may point out some useful factors that were capable to define the etiology of chronic constipation, which were the scoring system, various clinical symptoms, which were entirely inspected, and defecography. Those describe the diagnosis of severe functional disease, pelvic floor dysfunction, colonic inertia instead of IBS a very confusing state, which sometimes demands physiologic tests.

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