

The importance of quantitative evaluation of constipation in children with lower urinary tract dysfunction

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ABSTRACT

OBJECTIVE: There is a known association between lower urinary tract dysfunction (LUTD) and constipation. The objective of this study was to investigate any correlation between voiding and bowel symptoms in children with LUTD.

METHODS: Children presenting with LUTD to our pediatric urology unit were prospectively included. Demographic data were recorded. All patients filled out the "Pediatric Lower Urinary Tract Symptom Score" (P-LUTSS) and "Constipation and Fecal Incontinence Symptom Severity" (CFISS) questionnaires. Symptom score correlation and associations with clinical findings were evaluated.

RESULTS: 76 patients were included. The mean P-LUTSS was 11 ± 7.1 ; mean CFISS was 7.7 ± 7.5 . According to P-LUTSS risk groups, median CFISS score increased as the risk group was increased. There was direct correlation between P-LUTSS and CFISS for all patients. 6th, 7th, 8th, 9th, 10th and 13th questions of P-LUTSS were correlated with CFISS; the 1st and 7th questions of CFISS were correlated with P-LUTSS. Patients who responded not to have constipation on P-LUTSS had lower CFISS scores compared to those who had constipation. Patients who had a 0 score on CFISS had a mean P-LUTSS of 7.7 ± 6.2 , which put the majority of patients in low-risk group. Also, out of these 11 patients, 10 of them responded to have no constipation on P-LUTSS.

CONCLUSION: A relationship between LUTD and bowel symptoms, as well as the positive correlation between P-LUTSS and CFISS was demonstrated in this study. Patients presenting with LUTD should undergo meticulous evaluation using special questionnaires for bowel symptoms. Only by then, a complete treatment approach can be provided.

Keywords: Constipation; diagnosis; lower urinary tract dysfunction; pediatric urology; questionnaire.

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Lower urinary tract (LUT) dysfunction is known to be associated with recurrent urinary tract infections and vesicoureteral reflux (VUR) [1, 2]. Patients with LUT dysfunction generally present with frequency, urgency and daytime urinary incontinence. It is well evidenced by various studies in recent years that constipation and LUT dysfunction have strong etiological relations [3–7]. Therefore, constipation should be evaluated as a

component of dysfunctional elimination syndrome and is strongly related with serious pathologies such as VUR [6]. In patients with concomitant VUR and constipation, the success of antireflux surgery is lower in patients with dysfunctional elimination syndrome [6]. In another series of 500 patients between 7–17 years old, the constipation rate was 22.6% in both male and female patients with an accompanying urinary incontinence rate of 10.5%



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[7]. Particularly, urinary incontinence rate was 21.8% and 7.3% in patients with and without constipation, respectively [7]. Due to apparent evidence of co-occurrence of LUT dysfunction and constipation, proactive questioning of constipation in patients with LUT dysfunction is suggested [5]. On the other hand, constipation alone is one of the most frequent problems of childhood. The frequency of functional constipation has a wide spectrum with an incidence between 4–40% [8–10]. The symptoms related to constipation adversely affect quality of life [11].

Consequently, questioning for LUT dysfunction in patients with constipation and vice versa is of utmost importance and should be a part of daily practice. The assessment of constipation is performed with only one “yes/no” question within the “Pediatric Lower Urinary Tract Symptom Score” (P-LUTSS), which evaluates LUT dysfunction in pediatric patients in the daily practice of pediatric urologists [12, 13]. However, it is impossible to quantify the severity of constipation in these patients by this single item, which in turn may affect the clinical decisions towards these patients [14]. There is no article in literature that evaluates the constipation and severity of fecal incontinence in children with LUT dysfunction and that reports the correlation of symptom severity and clinical outcomes of these patients.

In this prospective study, we aimed to evaluate the severity of constipation in children with LUT dysfunction along with accompanying clinical outcomes of these patients; and the correlation between P-LUTSS and constipation and fecal incontinence symptom scoring systems.

MATERIALS AND METHODS

This cross-sectional study was approved by the Marmara University Faculty of Medicine Clinical Research Ethics Committee (protocol number: 09.2018.418) on September 1, 2018. Helsinki Declaration, conforms the Committee on Publication Ethics (COPE) guidelines and was approved by the Institutional Review Board (IRB) of the university in which it was performed. Pediatric patients between the ages of 4–18, who presented to the Pediatric Urology outpatient clinic between June 1st, 2019 and December 31st, 2019 with voiding dysfunction symptoms were included. All the routine work-ups were recorded including urinalysis, urine culture, voiding diary, uroflowmetry measurements, urinary system ultrasonography and measurement of post-voiding residual urine volume, as well as urodynamic studies and voiding cystourethrography, if performed. Parents were

Highlight key points

- Patients presenting with lower urinary tract dysfunction should also be evaluated about constipation and bowel symptoms.
- Specific lower urinary tract dysfunction and constipation have strong correlation, therefore treatment strategies should aim both conditions.
- Special symptom scores should be used to evaluate both lower urinary tract dysfunction and constipation.

informed and consents were obtained from the parents, given that the patients are under 18 years old. Every patient with voiding dysfunction was asked to fill out the P-LUTSS (Appendix 1) and constipation and fecal incontinence symptom score (CFISS) questionnaires with the help of their parents at their first presentation to the outpatient clinic (Appendix 2) [15]. The primary outcome was the evaluation of constipation severity using CFISS in patients within different risk groups of LUT dysfunction. P-LUTSS questionnaire was validated in Turkish in 2005 by Akbal et al. [13], CFISS questionnaire is not validated in Turkish.

The secondary outcome was to evaluate the correlation between the 2 questionnaires; P-LUTSS and CFISS, to provide a positive or negative relation between specific questions.

Patients were grouped as low, intermediate and high-risk groups according to their P-LUTSS scores; 0–8 as low, 9–20 as intermediate and 21–37 as high-risk [13].

The exclusion criteria were; patients with neurogenic bladder dysfunction, patients with myelodysplasia, patients with cerebral palsy; patients with major psychiatric diseases; patients without a parent; patients with neurological or gastroenterological pathologies that can result in primary organic constipation, patients who were already on treatment regimens for either LUT dysfunction or dysfunctional elimination syndrome.

Statistical Analysis

All the data were analyzed using SPSS software (IBM SPSS Statistics version 20.0, SPSS Inc., Chicago, IL). Descriptive analysis and Mann-Whitney U tests were used. Mean values are provided along with standard deviation values and median values are provided along with minimum and maximum values. Pearson Correlation tests were performed for each question of the P-LUTSS questionnaire for their correlation coefficient with CFISS. The mean CFISS scores and the correlation

TABLE 1. Demographic information, Total Pediatric Lower Urinary Tract Symptom Score (P-LUTSS) and Total Constipation and Fecal Incontinence Symptom Score (CFISS) of patients

	Boys	Girls	All patients	p*
Age (years) (mean±SD)	8.9±3.6	7.2±4.2	8±4	0.148
Length (cm) (mean±SD)	122.6±22	119.6±23.1	121±22.5	0.571
Weight (kg) (mean±SD)	27.3±11.5	28.3±15	27.8±13.4	0.748
Body mass index (mean±SD)	17.4±2.9	18.4±3.9	17.9±3.5	0.201
P-LUTSS (mean±SD)	9.6±6.9	12.5±7.1	11±7.1	0.74
CFISS (mean±SD)	8.4±9	6.9±5.5	7.7±7.5	0.367

Mann Whitney U test (comparison done between "Boys" and "Girls"); SD: Standard deviation; P-LUTSS: Pediatric Lower Urinary Tract Symptom Score; CFISS: Constipation and Fecal Incontinence Symptom Score; *: P<0.05.

TABLE 2. Pediatric Lower Urinary Tract Symptom Score (P-LUTSS) questionnaire risk groups

	Low-risk		Intermediate-risk		High-risk	
	n	%	n	%	n	%
Boys	18	45	20	50	2	5
Girls	10	27.8	22	61.1	4	11.1

Descriptive analysis; P-LUTSS: Pediatric Lower Urinary Tract Symptom Score; P-LUTSS scores: Low-risk: 0–8; Intermediate-risk: 9–20; High-risk: 21–37.

between the individual questions and the CFISS are provided with related p values and correlation coefficients. p<0.05 was accepted as statistical significance.

RESULTS

A total of 76 patients were included in the study. 36 of them (47.7%) were female and 40 (52.6%) were male. The demographic information is given in Table 1. According to P-LUTSS risk groups; among the girls, there were 10 (27.8%), 22 (61.1%) and 4 (11.1%) patients in low, intermediate and high-risk groups; among boys, there were 18 (45%), 20 (50%) and 2 (5%) patients in low, intermediate and high-risk groups, respectively (Table 2). The mean P-LUTSS of patients was 11±7.1 as the mean score for boys was 9.6±6.9 and 12.5±7.1 for girls; whereas the mean CFISS for the whole group was 7.7±7.5, as the mean score for boys was 8.4±9 and 6.9±5.5 for girls (Table 1). When the boys and girls were compared for age, length, weight, body mass index, P-LUTSS and CFISS, there was no significant difference between the 2 groups (p>0.05 for all parameters).

TABLE 3. Constipation and Fecal Incontinence Symptom Score (CFISS) of patient groups according to Pediatric Lower Urinary Tract Symptom Score (P-LUTSS) questionnaire

P-LUTSS risk groups	CFISS
	Median (Min–Max, IQR)
Low	2.5 (0–23, 6)
Intermediate	8.5 (0–38, 12)
High	7 (1–24, 16)

Descriptive analysis; P-LUTSS: Pediatric Lower Urinary Tract Symptom Score; CFISS: Constipation and Fecal Incontinence Symptom Score; Min: Minimum; Max: Maximum; IQR: Interquartile range; P-LUTSS scores: Low-risk: 0–8; Intermediate-risk: 9–20; High-risk: 21–37.

When the CFISS of different risk groups according to P-LUTSS were compared, there was significant difference between low-risk group and intermediate-risk group (p=0.026). There is no significant difference between the high-risk group and the other groups as the number of patients is low in high-risk group (Table 3). The median CFISS score increased as the risk group was increased from low to intermediate (2.5 in low-risk group to 8.5 in intermediate-risk group).

The 13th question of the P-LUTSS is a yes/no question and is as follows: "my child does not pass stool every day". According to the 13th question, patients who responded yes (indicating constipation) had a median score of 11 (0–38), and patients who responded no (indicating absence of constipation) had a median score of 3 (0–23). The median score of constipated patients according to 13th question was significantly higher than the median score of non-constipated patients (p<0.001). The Pearson Corre-

lation showed that there was direct correlation between the answer to 13th P-LUTSS question and the median CFISS (Pearson Correlation coefficient 0.395, $p < 0.001$). There was also correlation between total P-LUTSS and CFISS (Pearson Correlation coefficient 0.326, $p < 0.005$).

The mean P-LUTSS of patients with a CFISS of "0" was 7.7 ± 6.2 , showing that the majority of patients without any symptoms according to CFISS were in the low-risk group according to P-LUTSS. Of the 11 patients with a CFISS of "0", 10 patients answered no to 13th P-LUTSS question (indicating absence of constipation) and only 1 patient answered yes to this question (indicating constipation).

When the correlation of CFISS was analyzed with all the individual questions of the P-LUTSS, there was significant correlation with 6th, 7th, 8th, 9th, 10th and 13th questions. P values and correlation coefficients of the aforementioned P-LUTSS questions were as follows; $p = 0.001$, $p = 0.01$, $p = 0.003$, $p = 0.019$, $p = 0.037$, $p < 0.001$ and Pearson Correlation coefficients: 0.389, 0.295, 0.333, 0.268, -0.239 and 0.395, respectively. The mean CFISS of the aforementioned individual questions are given in Table 4.

When the correlation of P-LUTSS was analyzed with the individual questions of the CFISS, 1st and 7th questions were found to be related. The Pearson Correlation coefficients for the 1st and 7th questions were 0.236 and 0.334, respectively ($p = 0.04$, $p = 0.03$, respectively). There was a trend toward an increase in P-LUTSS when the individual CFISS scores of 1st and 7th questions increased.

DISCUSSION

Urinary bladder and rectum have a common embryological origin which is the cloaca [16]. Cloaca is divided into two with a thin membrane to create the urinary bladder and rectum. The musculature, the peripheral nerve supply and the afferent nerve routes are common to both organs [16]. Thus, filling and excretion of both urine and feces have similar functional mechanisms. In an article evaluating 15 healthy female volunteers, the cystometric studies performed both when the rectum is empty and full, showed that the bladder is perceived as having a smaller capacity when the rectum is full and the electrical sensory thresholds were elevated in the urinary bladder wall. Therefore, it was evidenced in this article that rectal fullness affects bladder dynamics [17]. The same authors published in another study that when bladder fullness increases, rectal fullness sensation decreases in healthy

TABLE 4. The statistical evaluation of the P-LUTSS questionnaire questions that are found to be related with CFISS. The mean CFISS scores and the correlation between the individual questions and the CFISS.

	CFISS (mean \pm SD)	p	r
6 th P-LUTSS question			
Yes (n=29)	11.4 \pm 8.4	0.001	0.389
No (n=47)	5.4 \pm 6		
7 th P-LUTSS question			
Yes (n=26)	10.7 \pm 8.6	0.01	0.295
No (n=50)	6.1 \pm 6.5		
8 th P-LUTSS question			
Yes (n=33)	10.5 \pm 7.9	0.003	0.333
No (n=43)	5.5 \pm 6.6		
9 th P-LUTSS question			
Yes (n=17)	11.4 \pm 6.2	0.019	0.268
No (n=59)	6.6 \pm 7.6		
10 th P-LUTSS question			
Yes (n=55)	6.6 \pm 5.9	0.107	-0.239
No (n=21)	10.6 \pm 10.4		
13 th P-LUTSS question			
Yes (n=26)	11.8 \pm 8.5	<0.001	0.395
No (n=50)	5.5 \pm 6		

Mann Whitney U test; SD: Standard deviation; r: Pearson Correlation Coefficient; P-LUTSS: Pediatric Lower Urinary Tract Symptom Score; CFISS: Constipation and Fecal Incontinence Symptom Score.

volunteers [18]. In pediatric patients, rectal fullness affects bladder capacity, sensation and bladder activity to a 70% extent [19].

Clinical reports have claimed that the inflammatory process on both urinary and colorectal systems had negative effects on the other, and the treatment for the primary pathology also ameliorated the concomitantly affected system [16]. In the study by Burgers et al. [20] urgency and hesitancy symptoms related to LUT dysfunction were respectively seen in 7 and 0% of the control group, whereas were respectively seen in 61 and 41% of patients with defecation problems. Similarly, fecal incontinence and constipation were reported to be more frequent in women with voiding symptoms [21, 22]. In another study, patients with fecal incontinence exhibited higher LUT symptoms and urgency and urge incontinence were seen more frequently in patients with fecal incontinence and constipation, showing the interactions between the two systems [22]. In another study, comprising 2000 patients,

fecal incontinence and constipation were frequently encountered in patients with overactive bladder syndrome and it was reported that bowel symptoms should be questioned in overactive bladder [23]. In a series of 88 children with primary enuresis nocturna, 9% of the patients had constipation, which was reported to be a related issue [24]. In a study from Turkiye, a group of 38 pediatric patients with chronic functional constipation was compared to control group (n=31); urinary tract infection rates and urgency symptom rate were significantly higher in patient group. The authors claimed that voiding symptoms in patients with constipation and constipation in patients with urgency should be questioned [25]. It was also reported in the study of Loening-Baucke [7] that both urinary and fecal incontinence were more frequently seen in patients with constipation. It was well reported that fecal incontinence and constipation should be questioned at the same time along with scoring questionnaires to evaluate symptom severity. McGrath et al. [26] expressed in their study that even only 14.1% of the patients' families reported constipation when patients with enuresis nocturna were evaluated with a scoring system, 36.1% of the patients were diagnosed with constipation. This study is important in 2 ways: it shows that the constipation prevalence is high in patients with enuresis nocturna, and also shows that constipation should be evaluated with a scoring system questionnaire rather than direct expression of the patients and families.

The diagnosis of constipation along with fecal incontinence is clinically important for LUT dysfunction. After a constipation treatment of at least 12 months on 234 patients with constipation and fecal incontinence, daytime and nighttime urinary incontinence disappeared in 89% and 63%, respectively and urinary tract infections did not recur [27]. Similarly, in a series of 46 patients, when laxatives were given to children with both constipation and daytime urinary incontinence, 18 had total resolution of urinary incontinence and 26 got better with treatment. Also, an increase in total urinary output and lower residual urine volumes were reported after constipation treatment [28]. When urinary incontinence was treated, the fecal incontinence rate decreased from 32 to 21% in the study by Bael et al. [29].

All this information demonstrates that fecal incontinence and constipation must be questioned and scored in patients with LUT dysfunction. As constipation and fecal incontinence were under-reported by families, a questionnaire to evaluate these symptoms is valuable in clinical practice. In P-LUTSS questionnaire, there is only 1 ques-

tion that asks if the patient has constipation. It is important to quantify constipation rather than asking its presence. Although in our study, the question on P-LUTSS that asks if patients have constipation or not, is positively correlated with CFISS scores, there are many other aspects that can be evaluated with CFISS questionnaire.

Having high CFISS scores in LUT dysfunction patients should guide the physicians to meticulously evaluate these patients and direct them to a pediatric gastroenterologist for an active treatment process.

In our study, there is strong correlation between the two scoring systems, P-LUTSS and CFISS. It seems as the 13th question of the P-LUTSS that is asking if the patients have constipation or not, is a valuable question to determine bowel symptoms, but the outcome is not enough. The patients who reported to have no constipation symptoms according to this question had a median CFISS score of 3, which was significantly lower than that of patients who have constipation (median score 11). Although the 10th question of the P-LUTSS had a negative correlation, the 6th, 7th, 8th and 9th questions had a positive correlation. As a general approach towards P-LUTSS, these questions indicate the presence of dysfunctional voiding pattern [30]. So, pediatric urologists who evaluate LUT dysfunction patients with P-LUTSS, should fill out a CFISS or send the patients to a pediatric gastroenterologist for a thorough bowel evaluation whenever they have positive answers to these aforementioned questions.

The same pattern can be seen in CFISS questions 1 and 7, as they were found to be directly correlated with P-LUTSS. These questions evaluate the fecal incontinence and the progress of the patient until last seen in the hospital, respectively. When patients are found to have fecal incontinence or worse progress until last hospital visit, they also tend to have higher P-LUTSS. So, a P-LUTSS must be filled out for these patients, or these patient groups with aforementioned answers to 1st and 7th questions of the CFISS should be referred to a pediatric urology unit for LUT dysfunction evaluation and appropriate treatment.

Study Limitations

Our study has limitations such as the low number of participants in the study, lack of subgroup evaluations such as vesicoureteral reflux, urge incontinence patients, etc., and lack of urodynamic studies of patients. CFISS is not validated in Turkish.

Conclusion

A positive correlation between LUT dysfunction and constipation has been demonstrated in this prospective study. Also, it has been shown that there is a relationship between questionnaires that evaluate LUT dysfunction such as P-LUTSS and the scoring questionnaires that evaluate constipation and fecal incontinence such as CFISS.

Patients presenting with LUT dysfunction should undergo meticulous evaluation using special questionnaires to diagnose and quantify constipation symptoms. Only by then, a complete treatment approach towards both sets of symptoms can provide successful clinical outcomes.

Both the pediatric urologists who encounter patients with LUT dysfunction and the pediatric gastroenterologists who encounter patients with constipation and fecal incontinence should be aware of the co-existence of both sets of symptoms. Care should be taken to evaluate the patients for both systems, treat not only the presenting problem but also the concomitant disorder that is threatening the treatment outcome or at least refer the patient to a specialist for a complete treatment plan.

Ethics Committee Approval: The Marmara University Clinical Research Ethics Committee granted approval for this study (date: 01.06.2018, number: 09.2018.418).

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REFERENCES

1. Nevés T, von Gontard A, Hoebcke P, Hjälmås K, Bauer S, Bower W, et al. The standardization of terminology of lower urinary tract function in children and adolescents: report from the Standardisation Committee of the International Children's Continence Society. *J Urol* 2006;176:314–24. [\[CrossRef\]](#)
2. Van Batavia JP, Combs AJ. The role of non-invasive testing in evaluation and diagnosis of pediatric lower urinary tract dysfunction. *Curr Urol Rep* 2018;19:34. [\[CrossRef\]](#)
3. Bréaud J, Oborocianu I, Bastiani F, Bouty A, Bérard E. Voiding disorders in childhood: from symptoms to diagnosis. [Article in French]. *Arch Pediatr* 2012;19:1231–8. [\[CrossRef\]](#)
4. Averbek MA, Madersbacher H. Constipation and LUTS - how do they affect each other? *Int Braz J Urol* 2011;37:16–28. [\[CrossRef\]](#)
5. Halachmi S, Farhat WA. Interactions of constipation, dysfunctional elimination syndrome, and vesicoureteral reflux. *Adv Urol* 2008;2008:828275. [\[CrossRef\]](#)
6. Koff SA, Wagner TT, Jayanthi VR. The relationship among dysfunctional elimination syndromes, primary vesicoureteral reflux and urinary tract infections in children. *J Urol* 1998;160:1019–22. [\[CrossRef\]](#)
7. Loening-Baucke V. Prevalence rates for constipation and faecal and urinary incontinence. *Arch Dis Child* 2007;92:486–9. [\[CrossRef\]](#)
8. Loening-Baucke V. Factors determining outcome in children with chronic constipation and faecal soiling. *Gut* 1989;30:999–1006. [\[CrossRef\]](#)
9. Loening-Baucke V. Functional fecal retention with encopresis in childhood. *J Pediatr Gastroenterol Nutr* 2004;38:79–84. [\[CrossRef\]](#)
10. Mugie SM, Di Lorenzo C, Benninga MA. Constipation in childhood. *Nat Rev Gastroenterol Hepatol* 2011;8:502–11. [\[CrossRef\]](#)
11. Traslavina GA, Del Ciampo LA, Ferraz IS. Acute urinary retention in a pre-school girl with constipation. [Article in Portuguese]. *Rev Paul Pediatr* 2015;33:488–92. [\[CrossRef\]](#)
12. Akbal C, Şahan A, Şener TE, Şahin B, Tinay I, Tarcan T, et al. Diagnostic value of the pediatric lower urinary tract symptom score in children with overactive bladder. *World J Urol* 2014;32:201–8. [\[CrossRef\]](#)
13. Akbal C, Genc Y, Burgu B, Ozden E, Tekgul S. Dysfunctional voiding and incontinence scoring system: quantitative evaluation of incontinence symptoms in pediatric population. *J Urol* 2005;173:969–73. [\[CrossRef\]](#)
14. Varma MG, Wang JY, Berian JR, Patterson TR, McCrea GL, Hart SL. The constipation severity instrument: a validated measure. *Dis Colon Rectum* 2008;51:162–72. [\[CrossRef\]](#)
15. Clayden G, Keshggar AS. Management of childhood constipation. *Postgrad Med J* 2003;79:616–21. [\[CrossRef\]](#)
16. Malykhina AP, Wyndaele JJ, Andersson KE, De Wachter S, Dmochowski RR. Do the urinary bladder and large bowel interact, in sickness or in health? *ICI-RS* 2011. *Neurourol Urodyn* 2012;31:352–8. [\[CrossRef\]](#)
17. De Wachter S, Wyndaele JJ. Impact of rectal distention on the results of evaluations of lower urinary tract sensation. *J Urol* 2003;169:1392–4. [\[CrossRef\]](#)
18. De Wachter S, de Jong A, Van Dyck J, Wyndaele JJ. Interaction of filling related sensation between anorectum and lower urinary tract and its impact on the sequence of their evacuation. A study in healthy volunteers. *Neurourol Urodyn* 2007;26:481–5. [\[CrossRef\]](#)
19. Buntzen S, Nordgren S, Delbro D, Hultén L. Anal and rectal motility responses to distension of the urinary bladder in man. *Int J Colorectal Dis* 1995;10:148–51. [\[CrossRef\]](#)
20. Burgers R, Liem O, Canon S, Mousa H, Benninga MA, Di Lorenzo C, et al. Effect of rectal distention on lower urinary tract function in children. *J Urol* 2010;184:1680–5. [\[CrossRef\]](#)
21. Klingele CJ, Lightner DJ, Fletcher JG, Gebhart JB, Bharucha AE. Dysfunctional urinary voiding in women with functional defecatory disorders. *Neurogastroenterol Motil* 2010;22:1094–e284. [\[CrossRef\]](#)
22. Wyndaele M, De Winter BY, Pelckmans P, Wyndaele JJ. Lower bowel function in urinary incontinent women, urinary continent women and in controls. *Neurourol Urodyn* 2011;30:138–43. [\[CrossRef\]](#)
23. Coyne KS, Cash B, Kopp Z, Gelhorn H, Milsom I, Berriman S, et al. The prevalence of chronic constipation and faecal incontinence among men and women with symptoms of overactive bladder. *BJU Int* 2011;107:254–61. [\[CrossRef\]](#)

24. Kajiwara M, Kato M, Mutaguchi K, Usui T. Overactive bladder in children should be strictly differentiated from monosymptomatic nocturnal enuresis. *Urol Int* 2008;80:57–61. [\[CrossRef\]](#)
25. Kasirga E, Akil I, Yilmaz O, Polat M, Gözmen S, Egemen A. Evaluation of voiding dysfunctions in children with chronic functional constipation. *Turk J Pediatr* 2006;48:340–3.
26. McGrath KH, Caldwell PH, Jones MP. The frequency of constipation in children with nocturnal enuresis: a comparison with parental reporting. *J Paediatr Child Health* 2008;44:19–27. [\[CrossRef\]](#)
27. Loening-Baucke V. Urinary incontinence and urinary tract infection and their resolution with treatment of chronic constipation of childhood. *Pediatrics* 1997;100:228–32. [\[CrossRef\]](#)
28. Erickson BA, Austin JC, Cooper CS, Boyt MA. Polyethylene glycol 3350 for constipation in children with dysfunctional elimination. *J Urol* 2003;170:1518–20. [\[CrossRef\]](#)
29. Bael AM, Benninga MA, Lax H, Bachmann H, Janhsen E, De Jong TP, et al; European Bladder Dysfunction Study and EU#BMH-CT. Functional urinary and fecal incontinence in neurologically normal children: symptoms of one 'functional elimination disorder'? *BJU Int* 2007;99:407–12. [\[CrossRef\]](#)
30. Dogan HS, Akpınar B, Gurocak S, Akata D, Bakkaloglu M, Tekgul S. Non-invasive evaluation of voiding function in asymptomatic primary school children. *Pediatr Nephrol* 2008;23:1115–22. [\[CrossRef\]](#)

Pediatric Lower Urinary Tract Symptom Score Questionnaire

1. Does your child have urinary incontinence (peeing while not on the toilet) during the day?	No	Sometimes	1-2 times/day	3 or more times/day
	0	1	3	5
2. If Yes to Question 1	A few drops	Only underwear wet		Outer clothing wet
	1	3		5
3. Does your child have urinary incontinence (peeing while not on the toilet) during the night?	No	1-2 nights/week	3-5 nights/week	6-7 nights/week
	0	1	3	5
4. If Yes to Question 3	Underwear or pyjamas wet		Bed wet	
	1		4	
5. My child goes to the toilet to pee	Less than 7 times/day		7 or more times/day	
	0		1	
6. My child has to strain to pee	No	Yes		
	0	3		
7. My child experiences pain when s/he pees	No	Yes		
	0	1		
8. My child pees intermittently when on the toilet.	No	Yes		
	0	2		
9. My child has to go to revisit the toilet to pee soon after s/he pees	No	Yes		
	0	2		
10. My child has to run to the toilet when s/he feels the need to pee	No	Yes		
	0	1		
11. My child can hold his/her pee by crossing his/her legs, squatting, or doing the "pee dance."	No	Yes		
	0	2		
12. My child wets his/her clothes before reaching the toilet.	No	Yes		
	0	2		
13. My child does not pass stool every day	No	Yes		
	0	2		
If your child experiences any of the symptoms/issues mentioned above, does this affect his/her family life or social life?	Not at all	Sometimes		Seriously affects
	0	1		5

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Designed by Dr Graham Clayden

Parents' Questionnaire

Please tick the appropriate boxes below so that we can improve the quality of our records. Please answer the questions about the situation over the last ONE MONTH. We can discuss the answers or any other points during the consultation. Please sign here if you are happy for Dr Clayden to keep the answers to these questions securely on computer:

parent

patient (if old enough)

PTO for further information

1 About the soiling problem (faecal incontinence / mess in underclothes):

none	rarely	occasionally	only if bowel loaded	continuous day only	continuous day and night
0	1	2	5	8	10

2 About the delay from passing one complete stool to the next

daily stool	every 2or3 days	every 3to5 days	every 5to10 days	greater than 10	never
0	1	2	5	8	10

3 About pain and difficulty with passing stools

none	occasionally	often	with most stools	with every stool
0	1	2	4	5

4 About the amount and types of medicine needed regularly over the last month:

none	softeners only eg lactulose or docusate or daily movicol or methyl cellulose	softeners and daily stimulants eg senokot or picosulphate	softeners and daily stimulants and weekend extra picosulphate or movicol	medicines as well as extra weekend Klean-Prep or high dose movicol	medicines as well as regular enemas or suppositories
0	1	2	4	8	10

5 About how your child's general health has been affected by the bowel problem over the last month:

well	occasionally ill	often ill	ill most days	never well
0	2	3	4	5

6 About behaviour related to the bowel problem:

cooperative	needs reminding to use the lavatory/pot	refuses the lavatory or pot	also refuses medicines	also generally difficult behaviour
0	2	3	4	5

7 Overall, which best describes how the problems are now compared with the last time seen at hospital:

nearly completely OK	much better	some improvement	still as difficult	getting worse
0	1	4	8	12

Thank you for filling these in, the next two sections will be filled in after your child is examined today:

About the amount of stool detected on examination today:

none palpable	little palpable	suprapubic only	to umbilicus	beyond umbilicus	reaching ribs
0	1	2	3	5	8

months from last visit [] (post discharge?) or first visit []	months to next appointment [] or plans to admit [] or no definite follow up appointment []	TOTAL SEVERITY SCORE
		Date: