Irritable Bowel Syndrome - A descriptive study of symptom variation

Version 2

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Abstract

Introduction: Irritable Bowel Syndrome (IBS) is a functional gastrointestinal disorder with a broad spectrum of symptoms. The current view on IBS is that there may be similar but different pathologies for different patients with IBS even though they currently are included in the same diagnostic entity. This could explain the differences in symptoms between different patients.

Aim: To analyze symptom patterns in IBS and to assess differences in symptom patterns between the four IBS subgroups, as well as symptom variation during the course of the day.

Materials and methods: We analyzed prospective data collected from a 14-day symptom diary completed by 58 patients with IBS. The data was analyzed using descriptive statistics and analyses focusing on differences in symptoms between the four IBS subgroups as well as symptom variation during the day.

Results: Patients with diarrhea-predominance (IBS-D) had fewer hours of abdominal pain per day compared to the other IBS subgroups. Overall IBS symptom severity (IBS-SSS) did not differ between the four IBS subgroups. Bloating was the most commonly reported symptom with a low frequency during the night but with increasing frequency during the course of the day. We also found a correlation between meal intake and reports of bloating and nausea, but not with pain episodes.

Conclusion: This study demonstrates other differences in the symptom pattern than bowel habits between the four IBS subgroups, as well as substantial variation in the symptom patterns among individual patients with IBS. Moreover, diurnal symptom variation and different associations between IBS symptoms and meal intake were noted.
Introduction

Irritable Bowel Syndrome (IBS) is a functional gastrointestinal disorder with no current biochemical or anatomical explanation for the development of symptoms. It has traditionally been considered a psychosomatic disorder but nowadays is not considered a uniform disease entity, but rather a cluster of symptoms related to different pathologies where several different factors contribute to the development of symptoms. Alterations in the gut microbiota, gut immune function, gastrointestinal (GI) permeability, GI motility, visceral hypersensitivity, as well as alterations in the brain-gut axis and psychosocial factors, all contribute to the development of the typical symptoms compatible with IBS. Although one or more of these pathologies are present in most IBS patient, none of these can explain the symptom patterns in all IBS patients and it is likely that these factors play different roles in different patients and hence contributes to the varying symptomatology of the disorder [1]. It is therefore likely that we in the future no longer will consider all patients that currently fulfill the diagnostic criteria for IBS to suffer from the same disease.

The diagnosis of IBS is based on diagnostic criteria including a combination of symptoms, the most recent being the Rome IV criteria, and there are currently no laboratory tests or clinical investigations that demonstrate the presence of the disease. Other organic diseases that can be associated with similar symptoms should be excluded with reasonably certainty in the diagnostic work-up before making a diagnosis of IBS. Even though IBS from a medical-point of view is a benign disease, the symptomatology can be very disabling for the patients and IBS has been shown to significantly reduce work productivity and health-related quality of life [2]. There are also multiple comorbidities associated with IBS, such as fibromyalgia, chronic fatigue syndrome, other gastrointestinal disorders like functional dyspepsia, as well as psychiatric disorders like anxiety, depression and somatization; together all of these contribute to the symptom burden in patients with IBS [3][4].

The symptoms of IBS differ between patients, but the disorder is characterized by recurrent/chronic abdominal pain associated with defecation or a change in bowel habits (diarrhea and/or constipation), and these symptoms are included in the Rome IV criteria for IBS. Also other lower GI symptoms such as bloating, urgency, excessive gas, a feeling of incomplete defecation, and excessive straining are common in IBS, which is also true for several symptoms from the upper part of the GI tract. Another characteristic feature of IBS is
absence of symptoms during sleep and that symptoms are exacerbated or induced by meals[5].

Based on the predominant stool consistency based on the Bristol stool form (BSF), IBS patients are classified into four main subgroups (IBS-C with constipation-predominance, IBS-D with diarrhea-predominance, IBS-M with mixed or alternating stool pattern and IBS-U with mostly normal stool consistency) [6]. This information could help the practitioners in optimizing the treatment for the individual patients. However, these classifications have their limitations since no other symptoms or defecation characteristics are taken into account despite their relevance for treatment strategies and outcome. For that reason, it seems to be of great importance to better understand the varying symptom patterns among IBS patients in order to optimize the treatment, understanding and management of the individual patient

Therefore, the aim of this study was to analyze symptom patterns in a group of patients with IBS and to assess differences in symptom pattern between the four IBS subgroups, as well as symptom variation during the course of the day.

**Material and methods**

This study was conducted during the fall of 2018 at Mag- och tarmlaboratorium, Sahlgrenska University Hospital. We used data from questionnaires completed by IBS patients who took part in a large study started in the fall of 2015 with the purpose to better understand the link between pathophysiology, symptom patterns and food intake in IBS. The main features of the major study included: A number of investigations and analyses covering the most important pathophysiological and pathogenetic factors in IBS and a thorough characterization of the symptoms and food intake using validated questionnaires, as well as diaries.

The study included six visits at the unit, including several physiological investigations, physical examination, collection of colonic biopsies, blood and stool samples and questionnaires measuring GI and non-GI symptoms (Figure 1). The patients were also subclassified into one of the four IBS subgroups at their first visit based on their dominant stool pattern.
One of the questionnaires that the patients completed was the IBS severity scoring system (IBS-SSS), a questionnaire designed to assess overall severity of the IBS symptoms based on five questions. It incorporates questions about abdominal pain frequency and severity, severity of abdominal distention, bowel habit dissatisfaction and life interference [7].

Figure 1: Schematic overview of the study design of the large pathophysiology study; for the study reported here, we used data from the 14-days diaries and information from selected questionnaires completed at visits 1 & 2.

Participants
The patients (n=58) were recruited at Mag- och tarmlaboratorium at Sahlgrenska University Hospital. The majority of the patients were women (n=40, 69%; men n=18, 31%) and the median age for all the patients were 38.5 (19-66) years. 53 of the patients were subclassified according to their predominant stool pattern, whereas five patients could not be adequately subclassified because of missing data.

The inclusion criteria for the participants were as follows:

- Signed written informed consent
- Age at least 18 at baseline visit
Symptoms compatible with IBS according to the Rome III criteria (Rome III criteria used, since Rome IV criteria was presented in 2016; i.e. after the study started

Ability to understand and willingness to comply to the study procedures

Exclusion criteria were as follows:

- Participation in another clinical study 1 month prior to screening visit and throughout the study
- Abnormal results on the screening laboratory tests. clinically relevant for study participation
- Other gastrointestinal disease(s) explaining the patient’s symptoms
- Other severe disease(s) such as malignancy, severe heart disease, kidney disease or neurological disease
- Symptoms indicating other severe disease(s) such as gastrointestinal bleeding, weight loss or fever
- Severe psychiatric disease
- Previous history of drug or alcohol abuse 6 months prior to screening
- Consumption of antibiotics 1 month prior to screening and throughout the study
- Consumption of cortisone, NSAID or other anti-inflammatory drugs on a regular basis 2 weeks prior to screening and throughout the study
- Pregnant or lactating or wish to become pregnant during the period of the study

During a 14-day period the patients completed a GI symptom diary developed at Linköping University Hospital that evaluated gastrointestinal symptoms (Appendix). The diaries contained hourly information about meals, episodes of nausea, episodes of pain as well as the location and the intensity of the pain, episodes of bloating, defecation, stool consistency, as well as urgency, straining and the feeling of complete evacuation related to that defecation. The stool consistency was defined by the subjects based on the BSF scale, which determines the stool form or consistency in categories ranging from 1 to 7, hard and lumpy stools [1] - watery stools [7], with a normal stool form being defined as categories 3-5. The questionnaire was constructed to show when the symptom occurred and for how long the symptom was present. The diaries were distributed to the patients in paper form and completed by the patients at home, and then handed in at the following visit at the unit.

Statistics

All calculations were made using SPSS Statistics version 25 or Rstudio version 3.5.1. Shapiro-Wilk test was used as a test for distributions of normality. Mann-Whitney U-test was used as a test to compare means for non-parametric data. Kruskal-Wallis test was used to compare means between more than two groups. For the association between bowel movements and symptoms, we calculated the percentage of bowel movements that were preceded by symptoms in the previous hour, but not followed by symptoms in the next hour (=relief), and the percentage that was followed by symptom but not preceded (=worsen)
within one hour. We repeated this calculation 10,000 times, where bowel movement instances were randomly repositioned between days. From the resulting null-distribution we calculated p-values, i.e. for relief and worsening. For the meal and symptom association we did the same as above but hypothesizing symptoms worsening after meals. The level of statistical significance was set at $p<0.05$.

**Ethics**

The original study was approved by the Regional Ethical Review Board Gothenburg (DNR:988-14). All data was anonymized and all patient names were replaced with a patient ID number. Verbal and written informed consent was acquired from all patients before any study-related procedures were undertaken, and they were all informed that they could terminate study participation at any time and that their withdrawal would not affect their continued contact with the clinic.
Results

Differences in the symptom pattern among IBS subgroups were seen, with more pain, bloating and nausea episodes, as well as stools with straining and incomplete evacuation in IBS-C, and more stools with urgency in IBS-D and IBS-M, as well as expected differences between subgroups for stool consistency (Table 1). Also for stool frequency differences between the subgroups were seen. The patients with IBS-C had fewer stools per day than the patients with IBS-D (p=0.02) and IBS-M (p=0.028), and there was also a difference between the patients with IBS-M and IBS-U (p=0.032), with fewer stools per day in IBS-U (Figure 2). Moreover, overall IBS symptom severity measured with IBS-SSS did not differ between the four IBS subgroups (p=0.174) (Table 1).

Symptoms and stool characteristics

Table 1: Recorded symptoms, stools and stool characteristics for 53 patients with IBS during a two-week period, specified for all IBS subgroups.

<table>
<thead>
<tr>
<th></th>
<th>IBS-C</th>
<th>IBS-D</th>
<th>IBS-M</th>
<th>IBS-U</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>16</td>
<td>19</td>
<td>11</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>IBS-SSS (mean score)</td>
<td>270.25</td>
<td>204.68</td>
<td>260.60</td>
<td>273.60</td>
<td>p=0.174</td>
</tr>
<tr>
<td><strong>Symptoms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain (mean hours per day)</td>
<td>4.89</td>
<td>3.22</td>
<td>3.79</td>
<td>4.96</td>
<td>p&gt;0.001</td>
</tr>
<tr>
<td>Bloating (mean hours per day)</td>
<td>8.74</td>
<td>5.71</td>
<td>6.10</td>
<td>8.16</td>
<td>p=0.011</td>
</tr>
<tr>
<td>Nausea (mean hours per day)</td>
<td>2.53</td>
<td>1.10</td>
<td>1.15</td>
<td>1.24</td>
<td>p&gt;0.001</td>
</tr>
<tr>
<td>Stool n and stools with a confined consistency(^{(1)})</td>
<td>290 (279)</td>
<td>564 (564)</td>
<td>318 (316)</td>
<td>147 (147)</td>
<td>p=0.008</td>
</tr>
<tr>
<td>Stools (mean number of stools per day)</td>
<td>1.30</td>
<td>2.21</td>
<td>2.12</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td><strong>Stool consistency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard stools (BSF 1.2)</td>
<td>100 (35.8%)</td>
<td>47 (8.3%)</td>
<td>120 (37.7%)</td>
<td>32 (21.8%)</td>
<td></td>
</tr>
<tr>
<td>Normal stools (BSF 3.4.5)</td>
<td>136 (48.7%)</td>
<td>297 (52.7%)</td>
<td>161 (50.6%)</td>
<td>103 (70.0%)</td>
<td></td>
</tr>
<tr>
<td>Loose stools (BSF 6.7)</td>
<td>43 (15.5%)</td>
<td>220 (39.0%)</td>
<td>37 (11.7%)</td>
<td>12 (8.2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Stool characteristics(^{(2)})</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stools with urgency</td>
<td>54 (18.8%)</td>
<td>233 (42.5%)</td>
<td>124 (41.5%)</td>
<td>18 (12.6%)</td>
<td></td>
</tr>
<tr>
<td>Stools with straining</td>
<td>238 (82.6%)</td>
<td>250 (45.8%)</td>
<td>174 (58.2%)</td>
<td>114 (79.7%)</td>
<td></td>
</tr>
<tr>
<td>Stools with incomplete evacuation</td>
<td>206 (71.8%)</td>
<td>252 (46.4%)</td>
<td>172 (60.1%)</td>
<td>64 (44.8%)</td>
<td></td>
</tr>
</tbody>
</table>

\(^{(1)}\) = The first number is the number of stools in total, the second number is the number of stools with a confined consistency
\(^{(2)}\) = Not all stools were recorded with stool characteristics because of insufficient data entry by the participants
Figure 2: Mean number of stools per day for the 53 patients, specified for all IBS subgroups.

Symptom distribution during the course of the day
The distribution of symptoms during the day is demonstrated in Figure 3. As expected symptoms were more frequently reported during the day compared with nighttime. A gradual increase in the number of bloating episodes occurred during the day, whereas nausea and pain episodes were more evenly distributed during the day. Defecation was most frequent in the morning.

Figure 3: The sum of nausea, pain, bloating and defecation episodes per hour during the 14 days of registration for the 58 patients.
Abdominal pain

Three patients did not record any pain episodes during the two-week period. The remaining 55 patients recorded a mean of 4.39 +/- 5.87 SD hours of pain per day. There were differences in hours with abdominal pain among the IBS subgroups (Figure 4), with significant differences between the IBS-D and the three other subgroups respectively (IBS-C; $p=0.008$, IBS-M; $p=0.009$ and IBS-U; $p=0.019$).

![Abdominal pain total hours per day for the 53 patients, specified for all IBS subgroups.](image)

**Figure 4**: Total hours of abdominal pain per day for the 53 patients, specified for all IBS subgroups.

Temporal relationship between pain episodes, meals and defecations

The temporal relationship between pain episodes and defecation/meals are summarized in Table 2. There was no significant association between meals and pain episodes within one hour after meal ($p=0.114$), there was however a significant association between meals and bloating episodes within one hour after a meal ($p<0.001$) as well as for nausea episodes within one hour after a meal ($p<0.001$). Of the pain episodes that were related to defecation there was a significant association between loose stools (but no other stools) and pain relief within one hour for all the patients ($p<0.001$). There was also an association between meals and defecation (any stool) within one hour after a meal ($p<0.001$) and when corrected for other stool forms there was still a trend for the association between meals and loose stools (but no other stool form) ($p=0.006$).
Table 2: Recorded temporal relation of 743 pain episodes to defecation and meal intake during a two-week period in 58 patients with IBS, specified by IBS subgroups.

<table>
<thead>
<tr>
<th></th>
<th>IBS-C</th>
<th>IBS-D</th>
<th>IBS-M</th>
<th>IBS-U</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain episodes related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to defecation(a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occurred after defecation</td>
<td>28.6%</td>
<td>49.8%</td>
<td>40.2%</td>
<td>19.3%</td>
<td>36.1%</td>
</tr>
<tr>
<td>Relieved after defecation</td>
<td>44.3%</td>
<td>42.5%</td>
<td>38.2%</td>
<td>54.5%</td>
<td>43.0%</td>
</tr>
<tr>
<td>Pain episodes not</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>related to defecation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occurred after defecation</td>
<td>71.4%</td>
<td>50.2%</td>
<td>59.8%</td>
<td>80.7%</td>
<td>63.9%</td>
</tr>
<tr>
<td>Pain episodes related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to meal intake(b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occurred after meal</td>
<td>45.0%</td>
<td>56.4%</td>
<td>73.0%</td>
<td>60.5%</td>
<td>57.3%</td>
</tr>
<tr>
<td>Relieved after meal</td>
<td>60.4%</td>
<td>67.2%</td>
<td>78.9%</td>
<td>71.0%</td>
<td>70.1%</td>
</tr>
<tr>
<td>Pain episodes not related to meal intake</td>
<td>39.6%</td>
<td>32.8%</td>
<td>21.1%</td>
<td>29.0%</td>
<td>29.9%</td>
</tr>
<tr>
<td>Pain episodes not related to meal intake</td>
<td>55.0%</td>
<td>43.6%</td>
<td>27.0%</td>
<td>39.5%</td>
<td>42.7%</td>
</tr>
</tbody>
</table>

(a) Meaning that the pain episode occurred or was relieved within 1 hour after defecation
(b) Meaning that the pain episode occurred or was relieved within 1 hour after meal intake

Discussion and conclusion

In this study where we used detailed symptom diaries during 14 days in 58 patients with IBS, we have demonstrated substantial symptom variation between individuals with IBS, as well as differences among IBS subgroups defined by their predominant bowel habit. No difference in overall IBS symptom severity (IBS-SSS) was seen between the four IBS subgroups. Moreover, we have also demonstrated diurnal variations in the symptom patterns with differences between the key symptoms in IBS. These findings are of importance to better understand variation among patients with IBS in order to improve management of this heterogeneous population of patients.

Pain is a key component of the symptomatology of IBS. According to the diagnostic criteria for IBS, the most recent being the Rome IV criteria you cannot make an IBS diagnosis without the presence of pain[6]. Three of the 58 patients included in this study did not report any pain during the 14-days period, which may be due to the fact that they have not completed the symptom diary carefully enough or that the chosen period was an exceptionally good period with few symptoms (and no pain), which happens in IBS patients due to the fluctuating nature of symptoms. The most common symptom in our study was bloating rather than pain even though it is not part of the diagnostic criteria for IBS. The reason why bloating is not part of the diagnostic criteria, even though it is seen so frequent in patients with IBS is because the symptom is so common also among other GI disorders and not specific for IBS.
alone [8]. Nausea, which was included in this study, is also not part of the diagnostic criteria for IBS and was the least frequently reported symptom. Even though IBS is considered mainly a disorder of the large colon, there is a significant overlap between IBS and upper GI symptoms and upper functional GI disorders which could explain why nausea was still reported as a symptom [9][10].

We could see a pattern with increasing number of bloating episodes during the course of the day with a peak during the afternoon/evening and fewer episodes at night. Other studies have indicated that bloating often worsens during the day and reaches a peak during afternoon/evening which is in line with our results [11]. The pain and nausea episodes had a fairly even distribution throughout the day with fewer episodes at nighttime. One characteristic feature of IBS is the lack of symptoms during sleep, which is in line with our findings, and which differs from e.g. inflammatory bowel disease during a flare of their disease. We can of course assume that most patients sleep during the night which is a logical explanation for why there were less symptoms reported at night in our study [12]. Some patients still reported symptoms at night which might be due to the fact that we do not have information about when the patients were asleep, and there are indeed previous reports of symptoms at nighttime in some IBS patients, especially pain and bloating, but normally not defecation.

Postprandial symptoms are common in all subgroups of patients with Irritable Bowel Syndrome[5]. We found a significant association between meals and the induction of bloating and nausea episodes within one hour after meal, but found no association between meals and pain episodes within one hour after meal. One previous study that looked at differences in GI symptom response to a standardized meal in IBS patients showed significant increases in bloating and nausea following a meal in IBS patients, but not in pain episodes [13]. Another study that evaluated the relationship between pain and meals in 70 IBS patients came to the conclusion that pain was temporarily worsened by meals for about half of the pain periods within 90 minutes after a meal [14]. In our study about 40 % of the pain periods for all patients were worsened within one hour after a meal (57.3% of the pain periods were related to a meal out of which 70.1% were worsened). This percentage-association does not however take into account chance, and we were able to show that even though about 40 % of the pain periods in our study were worsened after a meal there was no statistical significant correlation.
between these two variables. Our study simply strengthens the theory that the connection between meals and induction of pain in IBS patients is not as strong as previously thought, however there seems to be a stronger correlation between meals and the induction of nausea and bloating.

The patients with IBS-D showed significantly fewer hours of pain per day than the other three subgroups and also a higher percentage of stools with urgency (42.5%) as well as highest stool frequency. Other studies have indicated that there are more troublesome symptoms reported in IBS-D patients, such as faecal urgency and increased stool frequency rather than abdominal pain, which is in line with our results[15]. For the patients with IBS-D almost half of the pain episodes (49.8%) had some relation to defecation (57.5% was relieved after defecation whereas 42.5% occurred after defecation). This was higher than for all the other subgroups. We were able to see a correlation between loose stools and pain relief within one hour for all the patients in the study. Since the patients with IBS-D reported the highest frequency of loose stools this could explain the high percentage of pain episodes relieved by defecation for this group.

The patients with IBS-C reported the highest proportion of stools with straining (82.6%) as well as with a feeling of incomplete evacuation (71.8%). Urgency was not a prominent feature for this group (18.8%), whereas this was seen in approximately 40% of stools in IBS-D and IBS-M. These findings are in line with previous reports of symptoms during bowel emptying in IBS subgroups.

The patients with IBS-M is a group characterized by mixed bowel habits, i.e. both constipation and diarrhea. This subgroup showed a high proportion of stools with urgency (41.5%), straining (58.2%) as well as the feeling of incomplete evacuation (60.1%).

One interesting finding was that they reported a similar proportion of hard stools as the patients with IBS-C (35.8% vs 37.7%) but a stool frequency more similar to the patients with IBS-D. Other studies have indicated that the symptom pattern in these patients includes features of both IBS-D and IBS-C when it comes to stool characteristics and stool frequency, and the findings in our study supports this [16].

The patients that reported mostly normal stools and therefore classified as unsubtyped IBS (IBS-U) is a group that has not been that well studied previously. The stool consistency was
normal according to BSF in about 70 % of the stools in our IBS-U patients, which was expected. However, even though these patients reported mostly normal stools they still reported almost three times as many hard stools than loose stools (21.8% vs 8.2%). They also reported a high proportion of stools with straining (79.7%) as well as a low proportion of stools with urgency (12.6%) similar to those of IBS-C. These patients seem to resemble IBS-C more than IBS-D. However, the small number of patients with IBS-U in this study limits the possibility to generalize our findings.

The idea that there are differences other than stool consistency between the four IBS subgroups and that there might be other ways to subclassify the IBS patients is not new. In fact, a recent study from our group proposed a new IBS subclassification, by using a combination of the GI, psychological and extraintestinal symptom profiles[17]. In the future, the development of new subclassifications could lead to more personalized therapy and better outcome for the individual patient. It is not very likely that there is a single overarching disease model that can be applied to all patients with IBS and it is probable that there are multiple causes for the development of IBS symptoms even though some of them might share the same or similar pathways and therefore can explain the similarities but also the differences in symptoms in different patients with IBS, as well as the enigmatic switching between stool patterns seen in patients with IBS-M.

In this study we have demonstrated additional differences among the IBS subgroups as well as detailed understanding of diurnal symptom variation and relation between meals and symptoms in IBS, which may be used to further understand similarities and differences among these patients. As the development in medicine is progressing it is likely that we in the future will see updated IBS subclassifications and possibly the discovery of new disease entities within the IBS spectrum. Findings from the detailed symptom diaries over longer periods may help in this endeavor.

**Acknowledgments**

The author would like to thank all the participants in the study, and the staff at Mag- och tarmlaboratorium, Sahlgrenska University Hospital, Gothenburg, Sweden for their support during the conduct of this study. In particular, I would like to thank my supervisors Professor Magnus Simrén, and Associate professor Hans Törnblom, as well as Egbert Clevers, PhD student, for statistical support.
References


14. Ragnarsson G, Bodemar G. Pain is temporally related to eating but not to defaecation in


Dear Editor of New England Journal of Medicine

Please, consider the enclosed manuscript entitled "Irritable Bowel Syndrome - A descriptive study of symptom variation" for publication in New England Journal Of Medicine.

We have analyzed symptom patterns in Irritable Bowel Syndrome (IBS) to get a better understanding of the symptomatology of the disorder which in turn could help practitioners to better optimize the treatment of the individual patient. Based on a diary which has given us information about meals, defecations and gastrointestinal symptoms for 14 days in a group of IBS patients, we have found that there are other differences than stool consistency between the different IBS subgroups, which the current subclassification is solely based on. We have found associations between meals and the induction of bloating and nausea, but not pain episodes. We have also showed that there is a reduction of typical IBS symptoms at night and that the frequency of bloating episodes increases during the course of the day.

To our knowledge this is one of the first studies of this kind and we believe that this study can contribute to the development of new more specific subclassifications of IBS patients, which in the future could lead to the development of new treatment strategies and increased patient health.

Yours, sincerely,

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Sweden
Irritable Bowel Syndrome - En sjukdom med många ansikten

Irritable Bowel Syndrome (IBS) är en magtarmsjukdom med ett varierande symptommönster. Symtom från magtarmkanalen som buksmärta, illamående och känsla av uppbästhet kan skilja sig åt kraftigt mellan olika patienter. Vi har i vår studie med hjälp av en magdagbok där patienterna fått fylla i sina besvär under 14 dagar tittat på skillnader i symptom mellan olika grupper av patienter med IBS samt kopplingen mellan födointag, toalettbesök och dess relation till typiska IBS symptom. Det vi har kommit fram till är att det finns många skillnader i symptom mellan olika grupper av patienter med IBS, bland annat har vi kunnat se att patienter med diarré-dominerande IBS har mindre besvär med buksmärta än andra grupper av IBS patienter. Vi har också kunnat se att det finns en koppling mellan födointag och uppkomst av uppsvälldhet samt illamående, men att det inte finns någon koppling mellan födointag och uppkomst av buksmärta. Ett annat fynd i vår studie är att det finns en koppling mellan lösa avföringar och smärtlindring vid buksmärta, dvs har man ont i magen och samtidigt är lös i magen kan det hjälpa att gå på toaletten, men att vi inte kunnat se denna kopplingen om man har normal eller hård avföring. Vi har även kunnat visa att IBS patienter som grupp har en lindring av symptom under natten, dvs då de flesta patienter sover, vilket är karakteristiskt för IBS.
Sammantaget kan man säga att IBS är en sjukdom med många olika symptom och att två patienter med samma sjukdom kan ha helt olika symptombild.
**Etisk reflektion**


Studien i sig har också varit väldigt krävande för patienten med många besök samt vissa mer eller mindre obekväma undersökningar som bland annat koloskopi, rektal sensibilitetsmätning och provocationsprov av symptom. Tanken med detta har varit att kunna förstå sjukdomen bättre och därmed i framtiden kunna erbjuda bättre behandlingar. Vissa av patienterna kan därmed ha utstått lidande under studien för att hela gruppen av patienter eventuellt ska kunna få det bättre i framtiden. Det har därför varit viktigt att patienterna har förstått vad det innebär att delta i studien och att de hela tiden haft möjlheten att när som helst avsluta sin medverkan utan att det i framtiden påverkar deras möjligheter till vidare behandling på kliniken.

Det har också handlat om information som vissa uppfattar som känslig och det har därför varit viktigt att avidentifiera patienterna och se till att känslig information inte sprids.