Relationship between severity of symptoms and quality of life in 858 patients with irritable bowel syndrome

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SUMMARY

Aims — Heath-related quality of life (QoL) is decreased in patients with irritable bowel syndrome (IBS) but the relationship between symptom intensity of IBS and QoL remains largely unknown. The aim of this prospective survey was to investigate the relationship between intensity of IBS and changes in QoL.

Methods — Eight hundred and fifty-eight patients with IBS, according to Rome II criteria, completed a symptom questionnaire to measure intensity of IBS, and the gastrointestinatl quality of life (GIQLI) questionnaire, which is a general QoL measure in patients with gastrointestinal disorders.

Results — 37.2% of the patients had constipation-predominant type IBS, 37.3% had diarrhea-predominant IBS and 25.4% had alternating diarrhea and constipation type symptoms. IBS was considered to be in remission or mild in 8.3% of patients; 41.3% had moderate IBS and 50.4% had severe IBS. The mean GIQLI score was 88 ± 20. There was a significant correlation between symptom intensity and changes in QoL. Other significantly related factors were the type of bowel abnormality and gender.

Conclusion — In IBS patients, symptom intensity and type of IBS have a negative impact on health-related QoL.

RÉSUMÉ

Relations entre la sévérité et la qualité de vie chez 858 malades ayant un syndrome de l’intestin irritable

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Objectif — La qualité de vie (QdV) est diminuée chez les malades ayant un syndrome de l’intestin irritable (SII) mais les relations entre l’intensité des symptômes et l’altération de la QdV sont mal connues. Le but de cette enquête prospective était de rechercher une corrélation entre l’intensité du SII et l’altération de la QdV.

Méthodes — Huit cent cinquante-huit malades ayant un SII selon les critères de Rome II ont rempli un questionnaire symptomatique mesurant l’intensité du SII et le questionnaire GIQLI qui est un questionnaire général de mesure de la QdV des malades ayant une affection digestive.

Résultats — La constipation prédominante était notée chez 37,2 % des malades, la diarrhée prédominante chez 37,3 % et l’alternance de diarrhée et de constipation chez 25,4 %. L’intensité des symptômes était nulle (rémission) ou légère chez 8,3 % des malades, modérée chez 41,3 % et sévère chez 50,4 %. La valeur moyenne du score global GIQLI était 88 ± 20. Il existait une corrélation significative (P < 0,001) entre l’intensité des symptômes et l’altération de la QdV. Les autres facteurs significativement corrélés à l’altération de la QdV étaient le type de troubles du transit et le sexe.

Conclusion — L’intensité des symptômes et le type de troubles du transit ont un impact significatif sur l’altération de la QdV dans le SII.

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The purpose of this prospective survey of a population of IBS patients consulting a gastroenterologist outside the hospital setting was to search for a relationship between the severity of IBS symptoms measured with a specific quantitative questionnaire, and quality of life, measured with the GIQLI questionnaire.

Patients and methods

Methodology

A cross-sectional survey was conducted among adults (aged 18 years or older) with a diagnosis of IBS who attended non-hospital gastroenterology out-patient clinics in metropolitan France during a given two-week period. Patients were seen in the setting of a normal consultation and practitioners were left free with respect to the conditions of the consultation as well as clinical examination, complimentary investigations and eventual management strategies. In order to obtain representative data, participation in the survey was proposed to more than 2000 gastroenterologists practicing in France so as to obtain approximately 400 participants with a balanced geographic distribution. To avoid selection bias, each participating physician proposed the survey questionnaire to consecutive patients with IBS who consulted during the two weeks of the study.

Patients

After noting the patient’s demographic features and clinical history, the participating patients with IBS fulfilling the Rome II criteria [11] were proposed the IBS symptom questionnaire and the GIQLI questionnaire.

Questionnaires

Each patient was asked to complete the irritable bowel syndrome severity scoring system initially developed and validated by Francis et al. [20]. The French version of this self-administered scoring system has been validated by the Mapi Research Institute (MAPI, 27 rue de la Villette, 69003 Lyon, France). The questionnaire is composed of: 1) two items concerning the presence of abdominal pain and bloating (response yes or no); 2) four visual analogue scales measuring intensity of pain, bloating, relief following defecation, and impact of symptoms on general quality of life; 3) an item on the number of days of suffering during the preceding 10 days. This questionnaire produces a quantitative score ranging from 0 to 500 used to determine a qualitative assessment of severity: < 75 = remission; 75-175 = mild IBS; 175-300 = moderate IBS; > 300 = severe IBS.

The French version of the gastrointestinal quality of life index (GIQLI) questionnaire includes 36 items detailed by Slim et al. in their validation study [9]. This questionnaire provides an overall QoL score and five subscores for the dimensions “symptoms” (items 1-9 and 27-36), “emotions” (items 10-14), “physical condition” (items 15-21), “social integration” (items 22, 23, 25 and 26), and “effect of medical treatment” (item 24). The score ranges from 0 (very poor QoL) to 144 (excellent QoL).

Objectives

The main objective of the survey was to investigate for a correlation between IBS symptom severity and QoL in patients with Rome II diagnostic criteria who agreed to fill out the questionnaires. Secondary objectives were to evaluate correlations between the severity of IBS symptoms and QoL in subpopulations defined by: gender, duration of symptoms, and type of IBS (constipation predominant (C-IBS), diarrhea predominant (D-IBS), or alternating constipation and diarrhea (ACD-IBS)). Alternating constipation and diarrhea IBS was defined as the presence of at least one of the criteria retained for the definition of diarrhea in the Rome II questionnaire [11].

Statistical analysis

Results are presented as mean and standard error of the mean or as percentage. SAS® software (version 8.2 SAS Institute, Cary, NC, USA) was used for statistical analysis. All comparisons were two-way tests with an alpha risk set at 5%. Missing data were not filled in. For the subpopulation data, quantitative variables were compared with Student’s t test or Wilcoxon non-parametric test as appropriate and qualitative variables with the chi-square test. Pearson’s or Spearman’s coefficients of correlation were calculated as appropriate. Analysis of covariance was performed for the overall GIQLI as a function of gender, type of IBS, and duration and severity of symptoms. P < 0.05 was considered significant.

Results

Nine hundred thirty-four patient-questionnaires were received. Sixty-two patients were excluded because the Rome II criteria were not fulfilled. The correlation analysis was thus performed for 858 patients, mean age 51.1 ± 15.3 years, 68.9% females. Patients had consulted spontaneously (53.9%) or had been referred by another physician (46.1%). None of the variables detailed below were significantly correlated with initial management, first consultation or referral by another physician.

Mean duration of IBS symptoms was 12.4 ± 12.2 years with 11.6% less than one year, 41.2% for 2-10 years, and 47.3% for 11 years or more. Symptom frequency and distribution in the subpopulations by type of IBS are presented in figure 1 and table I. Symptom distribution was significantly different according to gender (P < 0.001) with more women reporting constipation than men (41.4% versus 27.2%), and fewer women reporting diarrhea than men (32.0% versus 49.8%). Alternating constipation and diarrhea were reported in similar proportions (26.7% and 23.0%, respectively). Duration of IBS was correlated with transit-predominant type of IBS (P = 0.004), C-IBS being more frequent in patients with longer duration of symptoms. The IBS severity score was 293 ± 80. Abdominal pain on the day of the visit was reported by 96.9% of the patients and was scored 50 ± 22 on the visual analog scale (VAS). Bloating was reported by 91.4% (VAS = 52 ± 26). Only 3 patients were in remission (severity score < 75). In order to obtain a satisfactory sample size for subsequent analysis, these 3 patients were pooled together with the 66 patients with mild IBS (severity score 75-150). The population was thus composed of 8.3% of patients
in remission or with mild IBS, 41.3% with moderate IBS and 50.4% with severe IBS. The overall severity score was significantly higher in women than in men (302 ± 50.4% with severe IBS. The overall severity score was significantly different according to type of IBS (P < 0.001) but was not significantly different according to symptom duration but was significantly different according to type of IBS (P < 0.001) (table I).

The mean GIQLI score was 88 ± 20. Patient distribution in 8 groups is shown in figure 2. The mean global subscores were: symptom 48 ± 9 (range 0-76), emotion 11 ± 4 (range 0-20), physical condition 15 ± 6 (range 0-28), social integration 11 ± 4 (range 0-16), effect of treatment 3 ± 1 (range 0-4). The overall and subscores were lower in women than in men (P < 0.001) (figure 3). The overall GIQLI score was not significantly different according to duration but was significantly different according to type of IBS (P < 0.001) (table I).

The relationship between the overall GIQLI score and the IBS symptom severity score, the main objective of this study, was highly significant (Spearman’s coefficient of correlation rho = -0.57, P < 0.001). Correlation was also highly significant for the five dimensions evaluated by the GIQLI score (P < 0.001). QoL was significantly different between the three categories of disease severity, both for the overall score and for each of the subscores (P < 0.001) (figure 4). Regarding the secondary objectives, analysis of covariance showed that the GIQLI score was not correlated with duration of IBS (P = 0.17) but a significant correlation with the other factors studied was found: gender (P = 0.03) and type of IBS (P < 0.001). In this model, the most weighted factors (from the square of means) were, in decreasing order, severity of IBS, type of IBS, and gender. The relationship between symptom severity and QoL adjusted for gender and type of IBS is reported in figure 5. The adjusted means of the GIQLI score were 85 for women and 88 for men, 91 in the C-IBS patients versus 85 for the D-IBS patients and 84 for the ACD-IBS patients. The mean adjusted GIQLI score of the C-IBS patients was significantly different from that in the D-IBS patients (P < 0.001) and the ACD-IBS patients (P < 0.001) but was not different between C-IBS and ACD-IBS patients (P = 0.488).

Discussion

This study confirmed the strong impact of IBS on QoL and demonstrated that the factors most significantly influencing QoL are symptom intensity, type of IBS and gender.

Patients included in this survey met the most recent version of the Rome II diagnostic criteria for IBS [11]. While these criteria are useful for selecting homogeneous groups of patients, they class all patients into two groups on the basis of the two types of transit-predominant symptoms (constipation or diarrhea);

<table>
<thead>
<tr>
<th>GIQLI score</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remission/mild</td>
<td>150</td>
</tr>
<tr>
<td>Moderate</td>
<td>100</td>
</tr>
<tr>
<td>Severe</td>
<td>50</td>
</tr>
</tbody>
</table>

Fig. 2 – Patients distribution according to the overall GIQLI (0 = worst possible quality of life; 144 = best possible quality of life). The mean overall index was 88 ± 20.

Fig. 3 – Quality of life measured by the GIQLI questionnaire according to gender for the overall score (0 = worst quality of life; 144 = best quality of life) and each of the four dimensions. Differences were significant (P < 0.001).

Qualité de vie mesurée par le questionnaire GIQLI en fonction du sexe pour le score global (représentant la plus mauvaise qualité de vie et 144 la meilleure) et chacune des dimensions. Les différences sont significatives (P < 0.001).

Table I. – Irritable bowel syndrome (IBS) severity scoring system and quality of life (QoL) measured by the gastrointestinal quality of life index (GIQLI) questionnaire in different subgroups of IBS patients according to predominant bowel pattern.

<table>
<thead>
<tr>
<th>Incidence (%)</th>
<th>C-IBS</th>
<th>D-IBS</th>
<th>ACD-IBS</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity score</td>
<td>311 ± 20</td>
<td>275 ± 80</td>
<td>304 ± 77</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>GIQLI</td>
<td>89 ± 20</td>
<td>88 ± 20</td>
<td>83 ± 19</td>
<td>0.003</td>
</tr>
</tbody>
</table>

IBS severity score ranges from 0 to 500; 0 = complete remission, 500 = greatest severity; GIQLI: 0 = worst possible QoL; 144 = best possible QoL; IBS: irritable bowel syndrome; C-IBS: constipation-predominant IBS; D-IBS: diarrhea-predominant IBS; ACD-IBS: alternating constipation-diarrhea IBS.
patients with alternating constipation diarrhea who accounted for about one quarter of the patients in our study and in other epidemiology studies in France [21], not being recognized as different. We felt it important to clearly identify this group of patients defined as patients responding to at least one of the criteria required for the diagnosis of C-IBS and at least one of the criteria required for the diagnosis of D-IBS. Besides their large number, it is also noteworthy that alternating constipation and diarrhea has an important impact on QoL, even if the overall GIQLI was the lowest in these patients among the three predefined subgroups of patients.

Like Rome I criteria, the Rome II criteria do not enable an assessment of symptom severity. Among the different severity scores published in the literature [22], the score developed by Francis et al. [20] is easy to use and reproducible allowing classification of patients in 4 subgroups defined by disease severity. The main criticism is the use of a simple analog scale to assess QoL. The QoL item should be taken as an overall assessment of symptom impact and cannot be considered as a true measure of quality of life. The results of our survey among patients visiting a gastroenterologist in a non-hospital setting show that more than 90% of the patients had moderate to severe symptoms and may represent a possible selection bias [23]. Ideally, a similar survey should be conducted among patients visiting their general practitioner and among subjects having Rome II criteria but not seeking medical assistance. The Rome II criteria are however more strict than the first version of IBS diagnostic criteria as described by Manning or the Rome I consensus. Some of the recent epidemiological studies applying the Rome II criteria have found that the frequency of IBS would be lower in the general population [21, 24], suggesting that the new criteria select patients with more severe disease [24]. However, a Canadian study [25] did not confirm this trend. The characteristics of the population studied in the present survey are similar to those generally reported for populations in epidemiological studies showing a clear female predominance, higher incidence of constipation among women, and inversely higher incidence of diarrhea among men [19] and patients with longer standing and recurrent disease [26].

We used the GIQLI questionnaire to assess QoL. This questionnaire is easy to use and the French version we applied has been validated by Slim et al. [8]. The main dimensions evaluated with the GIQLI questionnaire are the 4 dimensions generally studied in QoL: symptoms, emotions, physical condition, social integration. The scores generated can be considered as a compromise between generic and specific scores designed for one specific disease. We did not have a control population for our survey since the main objective of the study was to examine the relationship between changes in QoL and the intensity of IBS symptoms. In comparison with earlier results published by Slim et al. [8], we found that patients with IBS had a lower GIQLI score (88 ± 20) than healthy subjects (126 ± 18 among 335 subjects) and that patients scheduled for surgery (96 ± 23 among 259 patients). This greater decline in QoL among patients with moderate to severe IBS, in comparison with healthy subjects or patients with organic disease, has been reported by others [13]. Analysis of the raw data showed that QoL was altered significantly more frequently in women than in men. This gender-related difference is probably related to the smaller number of men with IBS [27]. Although QoL was not related to duration of symptoms, it was significantly associated with type of IBS, diarrhea having a greater impact on QoL. These findings differ from earlier studies suggesting that the type of IBS has little effect on QoL [14, 19, 27]. However, these three reports measured QoL with different questionnaires (MOS SF-36, Personal General Well Being Index) which do not take into consideration gastrointestinal symptoms explored by the GIQLI. We did not take into consideration associated organic, functional or psychological disorders in order to avoid an overly complex questionnaire. Such disorders are frequent in IBS-patients [28, 29], particularly when symptoms are severe [30]. They would undoubtedly also affect QoL [31, 32].

The overall correlation analysis also demonstrated a significant relationship between IBS symptom severity and QoL. The severity score was found to have the most impact on QoL, followed by type of IBS and gender. The relationship between symptom severity and QoL has not been examined in earlier studies generally conducted among patients considered to have moderate to severe disease but without objective assessment of symptom intensity, for example with a visual analog scale [12, 14-19]. There has been only one study among patients with mild symptoms but this population was limited to 7 patients assessed with a general QoL questionnaire [16]. This latter study did not find any difference between patients and controls, which would tend to confirm our findings (figure 4) where patients in remission or with mild symptoms were found to have scores very similar to those reported by Slim et al. in his validation study [8]. These studies were also conducted among patients attending referral centers who probably had more severe disease.

In conclusion, the results of this prospective survey conducted among patients visiting a gastroenterologist in a non-hospital setting provide an objective demonstration of the positive correlation between severity of IBS symptoms and QoL. Type of IBS and gender were found to be the most significant factors related to declining QoL. An improvement in symptoms, irrespective of the method used to achieve this goal, for example symptomatic treatment of transit disorders, would undoubtedly be a useful means of limiting the impact of irritable bowel syndrome on quality of life.

**REFERENCES**


