QUALITY OF LIFE IN CROHN’S DISEASE PATIENTS

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QUALITY OF LIFE IN CROHN’S DISEASE PATIENTS (Abstract): The aim of the study is to assess the impact of Crohn’s Disease (CD) on quality of life (QoL) patients with and to identify the significant modifications in QoL, depending on both the development particularities of CD and the epidemiologic parameters. Material and methods: a prospective study was conducted at the Institute of Gastroenterology and Hepathology Iași, between October 2011 and August 2014. The study enrolled 63 patients with CD. The CD diagnosis was based on clinical, biological, endoscopic and histological criteria. QoL was assessed by means of the IBDQ-32 questionnaire (Inflammatory Bowel Disease Questionnaire). Results: The total IBDQ score varied from 70 to 200, registering a slightly higher value in female patients. Parameters such as age, sex and smoking/ non-smoking status did not present significant differences in the IBDQ score. The values of the IBDQ score were in indirect, mild correlation with the CDAI score; over 49% of the subjects with higher CDAI had a lower IBDQ score. Conclusions: Except for the disease activity periods, the results of the studies investigating the impact of the various factors on the QoL in patients with CD are contradictory. Further research is needed in order to define the subgroups of patients likely to suffer from poorer QoL. Keywords: CROHN’S DISEASE, QUALITY OF LIFE, IMPACT.

Crohn’s Disease (CD) is an inflammatory bowel disease (IBD) which may affect any part of the gastrointestinal tract, and may do so in a nonconfluent pattern. The inflammation in CD is typically transmural. The symptoms during the periods of flare-ups can be polymorphous, manifested through chronic diarrhea associated with blood and mucus, abdominal pain, chronic fatigue, fever and weight loss, often accompanied by extraintestinal manifestations (articular, cutaneous, hepatic, renal or ocular) (1).

The early onset and its chronic development, marked by periods of activity followed by remission, the pathologies associated, as well as the treatment of the disease, are all likely to affect the patients both physically and through the limitation of their social and emotional life, through their educational or professional activity (2).

Similarly to all other chronic disorders, this diagnosis is perceived as a verdict, a threat to their future, which is likely to inevitably affect their quality of life (QoL). Over the last period, there has been growing awareness of the psychosocial implications of chronic disorders, which have
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previously been less known, or even ignored by the medical system (3). Although most of the times improvement in symptoms prevails over complete healing, the estimation of therapeutic success is essential through the assessment of the improvement in the patient’s QoL. This is achieved through the use of questionnaires aimed at assessing QoL. Such methods are used especially in chronic disorders, in which the subjective improvement of the symptoms is one of the main objectives of the treatment (4).

Health-related quality of life (HRQoL) was defined as the functional effect of a disease and its treatment upon the patients, as perceived by the patients themselves. The need for HRQoL assessment emerged in order to achieve the objective of the medical act, more precisely, with a view to improve the patients’ general state, respectively, their quality of life (6). HRQoL assessment contributes to quantifying the effectiveness of the medical act, taking into consideration its advantages and disadvantages (6).

The aim of the study is to assess QoL in patients with CD and to identify the significant modifications in QoL, depending on both the development particularities of CD and the epidemiologic parameters.

MATERIAL AND METHODS

A prospective study was conducted at the Institute of Gastroenterology and Hepathology Iasi, between October 2011 and August 2014. The study enrolled 63 patients with CD.

The CD diagnosis was based on conventional clinical features (diarrhea, associated or not with blood and mucus, abdominal pain, etc.), stool sampling in order to exclude infectious aetiologies, colonoscopy examinations by using the Mayo endoscopic score, biopsy sampling from the affected areas, and histopathological examinations. The disease activity was quantified by means of the CDAI score (Crohn Disease Activity Index).

QoL was assessed by means of the IBDQ-32 questionnaire (Inflammatory Bowel Disease Questionnaire), one of the questionnaires the most widely used in the assessment of HRQoL. The questionnaire contains 32 questions grouped into four fields: gastrointestinal symptoms (diarrheal stools, abdominal pain, rectal bleeding, and rectal tenesmus), systemic symptoms (fatigue, sleep disorders), emotional functions (depression, irritability, anger) and social functions (absenteeism, affected social status). The answers were marked on a scale from 1 (the worst) to 7 (the best). The total score ranged between 32 and 224. The lowest the score, the more affected the QoL (7).

Statistical analysis

The statistical treatment of the data was conducted by means of the SPSS 18.0 software as a perspective analysis, with no further adjustments for multiple testing, with a nominal significance defined as p <0.05. The relationships between IBDQ-32 and the Mayo score are reported by the Pearson correlation coefficients. The qualitative differences were established by means of the Kruskal-Wallis test.

Ethical considerations

All the patients enrolled in the study signed an informed consent, through which they were given details on the aim of the study, its methodology, the risks and benefits incurred by the study, as well as information regarding the confidentiality of the results obtained.
RESULTS
The total IBDQ score varied from 70 to 200, registering an average value which was slightly higher in women ($p=0.363$) (tab I).

Gender distribution was approximately equal, the ratio of gender shares being 1/1. Both the average IBDQ score and its subgroups were slightly higher in the female patients ($p>0.05$). The patients’ age did not influence the IBDQ score ($p=0.987$) (Fig.1).

Only 46% of the subjects were smokers, and the average IBDQ score did not present significant differences between the average values recorded in smokers (133.62±36.63) compared to non-smokers (143.47±27.44) ($p=0.228$) (fig.2).

The localisation and pattern of the disease did not influence the total IBDQ score ($p=0.860$, $p=0.587$). Nevertheless, slightly higher levels by subclass were highlighted in the patients with stenotic phenotype – B2 ($p>0.05$), (fig. 3). In the patients with ileocolonic location (L3), lower IBDQ score values were revealed, predominantly in the subgroups assessing QoL impairment by gastrointestinal symptoms, as well as impairment emotional function.

The individual values of the IBDQ score were in indirect, moderate correlation with the CDAI score; more than 49% of the subjects with a high CDAI score had a reduced IBDQ score ($r= -0.494; R^2 =0.244; p< 0.001$). The total IBDQ score was significantly lower in patients with moderate or severe flare ($p=0.008$). Assessed on subscales, gastrointestinal symptoms, systemic symptoms, emotional functions and social functions, the IBDQ scores were significantly lower in patients with severe flare ($p<0.05$) (tab. II).

### TABLE I

Statistical indicators describing the IBDQ score by gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Average</th>
<th>Standard deviation</th>
<th>Standard error</th>
<th>Confidence interval</th>
<th>Min</th>
<th>Max</th>
<th>p</th>
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<tr>
<td>female</td>
<td>32</td>
<td>142.59</td>
<td>31.260</td>
<td>5.526</td>
<td>131.32 – 153.86</td>
<td>76</td>
<td>195</td>
<td>0.363</td>
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<tr>
<td>male</td>
<td>31</td>
<td>135.16</td>
<td>33.053</td>
<td>5.936</td>
<td>123.04 – 147.29</td>
<td>70</td>
<td>200</td>
<td></td>
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<tr>
<td>IBDQ-1 gastrointestinal symptoms</td>
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<td></td>
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<tr>
<td>female</td>
<td>32</td>
<td>30.66</td>
<td>7.998</td>
<td>1.414</td>
<td>27.77 – 33.54</td>
<td>14</td>
<td>46</td>
<td>0.397</td>
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<td>IBDQ-2 systemic symptoms</td>
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<tr>
<td>female</td>
<td>32</td>
<td>33.50</td>
<td>8.527</td>
<td>1.507</td>
<td>30.43 – 36.57</td>
<td>16</td>
<td>48</td>
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<tr>
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<td>31.39</td>
<td>8.015</td>
<td>1.440</td>
<td>28.45 – 34.33</td>
<td>17</td>
<td>50</td>
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<td>IBDQ-3 emotional functions</td>
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<td>female</td>
<td>32</td>
<td>38.84</td>
<td>8.941</td>
<td>1.581</td>
<td>35.62 – 42.07</td>
<td>22</td>
<td>58</td>
<td>0.396</td>
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<tr>
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<td>31</td>
<td>36.87</td>
<td>9.383</td>
<td>1.685</td>
<td>33.43 – 40.31</td>
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<td>54</td>
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<td>IBDQ-4 social functions</td>
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<tr>
<td>female</td>
<td>32</td>
<td>39.25</td>
<td>7.565</td>
<td>1.337</td>
<td>36.52 – 41.98</td>
<td>24</td>
<td>49</td>
<td>0.393</td>
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<tr>
<td>male</td>
<td>31</td>
<td>37.52</td>
<td>8.422</td>
<td>1.513</td>
<td>34.43 – 40.61</td>
<td>22</td>
<td>53</td>
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</table>
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![Fig. 1. IBDQ score correlation with age]

![Fig. 2. Average IBDQ score values based on smoking status]

![Fig. 3. IBDQ score based on disease localization (left) and disease pattern (right)]
TABLE II
Total IBDQ score and subscales based on periods of activity

<table>
<thead>
<tr>
<th></th>
<th>Remission (n=19)</th>
<th>Flare</th>
<th>p</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>mild (n=19)</td>
<td>moderate (n=20)</td>
</tr>
<tr>
<td>Total score</td>
<td>153.11±36.00</td>
<td>145.42±22.68</td>
<td>126.70±29.17</td>
</tr>
<tr>
<td>Bowel symptoms</td>
<td>33.47±9.19</td>
<td>31.11±5.95</td>
<td>26.90±6.95</td>
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<tr>
<td>Systemic symptoms</td>
<td>35.89±9.50</td>
<td>33.58±5.98</td>
<td>30.00±7.86</td>
</tr>
<tr>
<td>Emotional functions</td>
<td>41.58±9.92</td>
<td>40.00±6.84</td>
<td>34.10±8.63</td>
</tr>
<tr>
<td>Social functions</td>
<td>41.84±8.59</td>
<td>40.21±6.11</td>
<td>35.35±7.00</td>
</tr>
</tbody>
</table>

DISCUSSION

Similarly to the data obtained from the literature, the study confirms the fact that the disease flare is the factor likely to have the highest impact on QoL in patients with CD. To date, it has been proven that severe disease flare influences QoL negatively, both in the patients with CD and in those with UC (8). In the present study, CD had a negative impact on all aspects related to the patients’ QoL, which may lead to depressive states and anxiety during and after periods of flare-ups. The total IBDQ and the scores of its subscales were significantly lower in the patients with moderate and severe disease activity (p=0.008).

In our study, the age, gender and the smoking status did not influence the IBDQ total score and sub-scores. Some studies have shown that QoL is more severely affected in women compared to men with CD (9). Nevertheless, this finding was not confirmed in the present study. As far as smoking is concerned, it was proven that smoking patients with CD underwent a higher risk of post-operative recidive, with lower response to medication. Recent data has suggested that smoking induces modifications at the level of both the inborn and acquired immune system. Moreover, smoking is associated with distinct modifications in the gut micro biota in both IBD and the healthy patients (10).

Although in our study, age did not influence the QoL score, previous research has shown significant differences in the QoL scores between young and old patients (11, 12).

Besides the disease flare-ups, the IBD patients’ age and gender are likely to have a significant impact on their QoL. Another study has shown that patients aged >50 years old presented a significantly lower QoL score compared to younger patients (p <0.001) (13).

On the other hand, other studies have shown that younger patients, even those with mild disease flare, presented a more influenced QoL, as well as a higher degree of chronic fatigue, compared to older patients (p = 0.06) (14,15).

Additionally, the disease localisation and pattern did not have a statistically significant influence on the IBDQ score. However, the patients with ileocolonic CD presented lower IBDQ scores.

CONCLUSIONS

The results of our study confirm the data in the literature regarding impaired QoL in patients with CD. The total IBDQ score varied from 70 to 200, registering a slightly higher value in female patients. Parameters such as age, sex or the smoking/ non-
smoking status did not present significant differences in the IBDQ score. The disease flare ups had the highest impact on the QoL in patients with CD. The values of the IBDQ score were in indirect, mild correlation with the CDAI score; over 49% of the subjects with higher CDAI had a lower IBDQ score. Except for the disease activity periods, the results of the studies investigating the impact of the various factors on the QoL in patients with CD are contradictory. Further research is needed in order to define the subgroups of patients likely to suffer from poorer QoL.

REFERENCES