Health-Related Quality of Life Associated with Chronic Constipation with or without Irritable Bowel Syndrome

Yaping Xu¹, Karen Lasich¹, Samuel Wagner¹, Jonathan Chapkin², Omer Doganbux²
¹Takeda Pharmaceuticals North America, Inc., Deerfield, IL, USA; ²Consumer Health Sciences International, Princeton, NJ, USA

Introduction

Chronic constipation (CC) affects 10–15% of the US population,¹ and disproportionately affects women, non-Whites, children and the elderly.²

Objective

To evaluate the effects of chronic constipation with or without irritable bowel syndrome on health-related quality of life.

Methods

Data were taken from the 2007 U.S. National Health and Wellness Survey (NHWS) database, an annual cross-sectional internet survey of the healthcare attitudes and behaviors of adults (aged ≥18 years). Subjects self-reported whether they had suffered from CC in the past 12 months, and were then directed to answer a series of questions about the conditions. The respondents with CC or without (W) then were compared to a control group of respondents without CC (without CC or W was then compared to a control group of respondents without CC or W).

HRQoL data were collected by using the validated instrument, SF-12v2, and both mental and physical component summary scores were computed, which are normed to the US population (Mean=50, Standard Deviation (SD)=10). Higher scores indicate better physical or mental well-being. A difference of 5 in the component scores is typically considered clinically meaningful.³

Multivariate linear regression models were developed to adjust for potential confounders including demographics, psychiatric (including bipolar disorder, anxiety, depression, generalized anxiety disorder, obsessive compulsive disorder, panic disorder, phobia, and social anxiety disorder), other GI diseases (including Crohn’s disease, ulcerative colitis, celiac, abdominal bloating, eating polyanyrias, diabetes, gastroparesis, reflux disease, and heartburn, but not CC or IBS), cancer, obesity, body weight, body fat, alcohol use, smoking, regular exercise (≥10 days/week), and other comorbid conditions (including arthrytis, atherothrombosis, chronic obstructive pulmonary disease, congestive heart failure, hypertension, diabetes, heart disease, myocardial infarction, cancer, stroke, pelvic disease, jaundice, neuropathy, thyroid condition, epilepsy, insomnia, and migraine).

Results

Among the 63,012 respondents in the survey, there were 2,648 subjects with CC or IBS-C, and 60,364 controls.

The CC/IBS-C participants were less likely to be male (23% vs. 55%, p ≤ .001), non-White (35% vs. 25%, p ≤ .001), and college-educated (33% vs. 37%, p ≤ .001) than controls. CC/IBS-C participants were also slightly older (Mean = 47.8 vs. 47.3, p ≤ .001) and CC/IBS-C participants had higher BMI values (Mean = 29.6 vs. Mean = 29.0, p ≤ .001). They were also significantly less likely to exercise 12 or more days per month (22% vs. 27%, p ≤ .001), more likely to be currently employed (66% vs. 55%, p ≤ .001), more likely to currently smoke (30% vs. 24%, p ≤ .001), more likely to be undergoing cancer treatment (3% vs. 2%, p ≤ .001), and more likely to be taking an opiate (5% vs. 7%, p ≤ .001) (Table 1).

The CC/IBS-C group was more likely to have a GI comorbidity (48% vs. 30%, p < .001) and a psychiatric comorbidity (63% vs. 37%, p < .001). The CC/IBS-C group also had a higher comorbidity rate of other chronic conditions, in particular cardiovascular, neurologic, pulmonary, and renal conditions. There were no significant differences in any of the demographic variables except for age and ethnicity.

The CC/IBS-C group had significantly lower levels of both physical (Mean=44.6 vs. Mean=47.3, p < .001) and mental (Mean=41 vs. Mean=46, p < .01) component scores compared to controls. The difference in the PCS scores between groups approached the threshold for a clinically significant difference (Mean=4.9 vs. 2.5, p < .001).

Discussion

Table 1: Demographic, Health Status, and Comorbidity Variables by Disease Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>CC/IBS-C Group (N = 2,648)</th>
<th>Controls (N = 60,364)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, n/ (%)</td>
<td>671 (30%)</td>
<td>29,569 (49%)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Race, n/ (%)</td>
<td>1,718 (65%)</td>
<td>18,925 (31%)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Education, n/ (%)</td>
<td>1,718 (30%)</td>
<td>14,310 (24%)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Marital status, n/ (%)</td>
<td>2,034 (77%)</td>
<td>45,241 (75%)</td>
<td>.03</td>
</tr>
<tr>
<td>Current smoker, n/ (%)</td>
<td>579 (22%)</td>
<td>16,265 (27%)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Current drinker, n/ (%)</td>
<td>789 (30%)</td>
<td>14,310 (24%)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Undergoing cancer treatment, n/ (%)</td>
<td>83 (3%)</td>
<td>1,037 (2%)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Current receptor inhibitor use, n/ (%)</td>
<td>66%</td>
<td>60,364</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>47.8</td>
<td>47.3</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Body Mass Index (BMI), Mean</td>
<td>29.6</td>
<td>29.0</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Physical component summary, Mean</td>
<td>44.6</td>
<td>47.3</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Mental component summary, Mean</td>
<td>41</td>
<td>46</td>
<td>&lt; .01</td>
</tr>
</tbody>
</table>

PCS = Physical component summary; MCS = Mental component summary

Table 2: Means (Controlling for Covariates) of Physical and Mental Component Scores for the CC/IBS-C Group (N = 2,648) and Controls (N = 60,364)

<table>
<thead>
<tr>
<th>Score</th>
<th>CC/IBS-C Group (N = 2,648)</th>
<th>Controls (N = 60,364)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical component summary</td>
<td>44.6</td>
<td>47.3</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Mental component summary</td>
<td>41</td>
<td>46</td>
<td>&lt; .01</td>
</tr>
</tbody>
</table>

PC = Physical component summary; MC = Mental component summary

Figure 1: Unadjusted Means of Physical and Mental Component Scores for the CC/IBS-C Group (N = 2,648) and Controls (N = 60,364)

After adjusting for the covariates listed above (demographics, health-indicator variables, and comorbidities), the CC/IBS-C group will had significantly lower levels of physical and mental component summary scores (Figure 2):

- Physical scores (Mean=44.6 vs. 47.3, p < .001)
- Mental scores (Mean= 41 vs. 46, p < .01)

Both physical and mental summary scores met the criteria for clinically significant difference compared to the total US adult benchmark (Mean=50) (Figure 2).

The difference in the PCS scores between groups approached the threshold for a clinically meaningful difference, thereby indicating that the control group were not representative of the normative US population (Figure 2).

Conclusions

- CC and IBS are associated with a significant negative effect on quality of life, in both physical and mental components of the scores. The differences in the scores reached the threshold of clinical significance, highlighting the detrimental impact of the condition on HRQoL with respect to a variety of potential confounding variables.
- The effect of CC/IBS-C was larger for physical domain scores than mental domain scores. Treatments that ameliorate the symptoms of CC or IBS-C may prevent worsening of HRQoL, thereby alleviating the significant burden of this illness.
- Further studies are warranted to validate our study’s findings.

Acknowledgements

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References

5. Eid T, Steinberg AJ, Sandler RS, Zinsmeister AR, Talley NJ. The health-related quality of life and economic burden of constipation. Pharmacoeconomics 2008; 26(7): 525-543.

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