Pharmacogenomics and Depression Symptom Improvement: Treatment by Primary Care Physicians or Psychiatrists

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BACKGROUND

• Major depressive disorder (MDD) is a significant health burden, with a past-year prevalence of 8.2% in Canada and 8.7% in the United States.1

• Individual response to pharmacological treatment for MDD varies widely and early selection of appropriate treatment increases a patient’s likelihood of achieving remission.2

• Previous studies have demonstrated that the use of combinatorial pharmacogenomic (PGx) testing to guide treatment selection improves outcomes for patients with MDD in the psychiatric care setting.3,4

• Given the shortage of specialized psychiatric resources, many patients with MDD seek treatment from primary care providers.

OBJECTIVE

• To assess the utility of combinatorial PGx testing among patients with MDD treated by primary care providers or psychiatrists as part of the IMPACT study.

METHODS

Study Overview

• Individualized Medicine: Pharmacogenetics Assessment and Clinical Treatment (IMPACT) project is a 7-year, naturalistic, open-label, prospective study.2

• Several scales were used to assess for psychiatric disorders, including the Beck Depression Inventory (BDI).3

Combinatorial PGx Testing

• Combinatorial PGx testing was performed for 8 pharmacokinetic and pharmacodynamic genes.2

• 33 psychotropic drugs were categorized according to the severity of gene-drug interactions based on an individual patient’s genetic results.

  - ‘Use as Directed’, ‘Use with Caution’, ‘Use with Increased Caution and More Frequent Monitoring’

Analysis of Depression Subgroup

• Outcomes were assessed for the subset of patients with moderate-to-severe depression (BDI ≥ 17) between baseline and follow-up.

  - Symptom improvement (% change in BDI score), Response (≥ 50% decrease in BDI score), Remission (BDI score ≤ 10)

• Outcomes were compared for patients who were treated by a psychiatrist versus a primary care provider.

RESULTS

Table 1. Patient Demographics at Baseline (N = 2,025)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Full Cohort</th>
<th>Primary Care</th>
<th>Psychiatrists</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, N (% of total)</td>
<td>2,025 (100)</td>
<td>873 (43.1)</td>
<td>1,152 (66.9)</td>
<td>—</td>
</tr>
<tr>
<td>Male, N (%)</td>
<td>617 (30.5)</td>
<td>255 (29.2)</td>
<td>362 (31.4)</td>
<td>0.28</td>
</tr>
<tr>
<td>Age, Mean (SD)</td>
<td>41.2 (14.8)</td>
<td>41.1 (14.5)</td>
<td>41.3 (15.1)</td>
<td>0.68</td>
</tr>
<tr>
<td>Age &lt; 65 Years, N (%)</td>
<td>1,903 (94.0%)</td>
<td>824 (94.3%)</td>
<td>1,079 (93.7%)</td>
<td>0.50</td>
</tr>
<tr>
<td>BDI score, Mean (SD)</td>
<td>33.1 (9.8)</td>
<td>32.4 (9.4)</td>
<td>33.7 (10.1)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Number of psychiatric medications, Mean (SD)*</td>
<td>1.6 (1.2)</td>
<td>1.4 (1.1)</td>
<td>1.7 (1.2)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

*patient self-reported at baseline

Figure 1. Patient Outcomes at Follow-Up in the Depression Cohort

Figure 2. Patient Outcomes at Follow-Up by Healthcare Provider Type

CONCLUSIONS

• 2,025 patients in the IMPACT study had moderate-to-severe MDD (Table 1).

  - Mean baseline BDI score was 33.

  - 56.9% of patients with MDD were treated by a psychiatrist.

• Mean BDI score decreased from 33 at baseline to 24 at follow-up, representing a 28% reduction in symptoms (p < 0.01; Figure 1).

• Response and remission rates at follow-up were 26% and 17%, respectively (Figure 1).

  - This is consistent with the combinatorial PGx-guided arm of a recent blinded, randomized controlled trial, where the response rate was 26% and remission rate was 15% at week 8.7

• Patient outcomes were significantly better among patients treated by primary care providers versus those treated by psychiatrists (Figure 2).

  - Symptom improvement: 32% versus 24%, p < 0.01

  - Response rates: 31% versus 23%, p < 0.01

  - Remission rates: 22% versus 14%, p < 0.01

• When outcomes were considered separately for patients < 65 and ≥ 65 years of age, all outcomes were significantly improved for patients treated by primary care providers compared to psychiatrists, regardless of age group.

REFERENCES


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