The Importance of Incorporating Drug-Drug Interactions and Lifestyle Factors in Pharmacogenomics-Guided Medication Management for Patients With Major Depressive Disorder in a Randomized Controlled Trial

Background
- Pharmacogenomic (PGx) testing provides targeted information on drug-gene interactions to improve medication efficacy and tolerability in patients with major depressive disorder (MDD) or other mental illnesses.1-4
- IDgenetix is a next-generation 3-in-1 PGx test that incorporates the results of a multi-gene variant panel with drug-drug interactions and lifestyle factors to guide medication management of mental health.
- In a previously published randomized controlled trial (RCT), IDgenetix-guided drug recommendations significantly improved remission rates compared to the standard empirical approach.1
- Recent meta-analyses of PGx tests with RCTs showed IDgenetix to have the greatest benefit.3,4

Objective
- Evaluate the contribution of drug-gene, drug-drug, and lifestyle factors to IDgenetix-guided medication management for patients with MDD.

Methods
- This study analyzed genotype/phenotype, drug recommendations, clinical adherence, and clinical outcomes (remission rates) for the contribution of drug-drug interactions and lifestyle factors in participants (n=261) with moderate to severe depression (HAM-D17 score ≥20) from a previously published RCT.1

Results

The non-genetic information (drug-drug interactions and lifestyle factors) accounted for 43% of all drug recommendations in study participants (n=261), while single-gene testing for CYP2D6 and CYP2C19 contributed only 22%.

Table 1. Most common concomitant drugs and lifestyle factors that impacted drug recommendations in all study participants

<table>
<thead>
<tr>
<th>Concomitant Prescription Drugs</th>
<th>Lifestyle Factors Including OTC</th>
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<tbody>
<tr>
<td>bupropion (18%)</td>
<td>diphendylarmine (27%)</td>
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<tr>
<td>fluoxetine (17%)</td>
<td>grapefruit juice (17%)</td>
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<tr>
<td>duloxetine (13%)</td>
<td>omeprazole (15%)</td>
</tr>
<tr>
<td>sertraline (12%)</td>
<td>ginseng (11%)</td>
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<td>paroxetine (3%)</td>
<td>cimetidine (8%)</td>
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Conclusion
- IDgenetix is a clinically validated PGx test that combines drug-gene interactions, drug-drug interactions, and lifestyle factors and demonstrates improved outcomes through a published RCT.
- The addition of drug-drug interactions and lifestyle factors to drug-gene interactions significantly impacted the number of drug recommendations within this study and contributed to improved remission rates for patients with moderate to severe depression.

References

Disclosures
FC, AH, and RC are employees and stock/option holders at Castle Biosciences.

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