The Clinical Utility of Combinatorial Pharmacogenomic Testing for Patients with Depression: A Meta-Analysis

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PHARMACOGENOMIC TESTING HAS EMERGED AS A POSSIBLE DATA-DRIVEN APPROACH TO INFORM TREATMENT DECISIONS FOR PATIENTS WITH MAJOR DEPRESSIVE DISORDER (MDD). HOWEVER, THERE IS MIXED EVIDENCE AVAILABLE FOR THE UTILITY OF PHARMACOGENOMIC TESTING DEPENDING ON THE TEST USED AND STUDY POPULATION.

META-ANALYSIS: PROVIDES A HIGH LEVEL OF EVIDENCE AND CAN BE USEFUL IN EVALUATING THE OVERALL UTILITY OF A TESTING APPROACH FOR CLINICAL USE.

- Given the meaningful differences between tests, all tests need to be evaluated separately and meta-analyses should be performed for each individual pharmacogenomic test.

BACKGROUND

OBJECTIVE

METHODS

RESULTS

- Patient outcomes were significantly improved for patients with MDD whose care was guided by the specific combinatorial pharmacogenomic-guided care test results compared to unguided-care (Figure 1).
- Heterogeneity in effect size across studies was significant, but moderate for symptom improvement, and was not significant for response and remission.

CONCLUSIONS

- This meta-analysis adds to the body of evidence supporting the clinical utility of using GeneSight Psychotropic to guide medication selection for patients with MDD who have failed at least one prior medication failure.


Figure 1. Meta-analysis of 4 prospective clinical utility studies of GeneSight® Psychotropic Forest plot of random-effects meta-analysis of 4 prospective, two-arm studies that examined the clinical utility of GeneSight® Psychotropic in guiding treatment decisions for patients with MDD. (a) Average difference in symptom improvement (b) relative risk ratio for response, and (c) relative risk ratio for remission between guided- and unguided-care. Circle size indicates weight in overall analysis. The Clinical Utility of Combinatorial Pharmacogenomic Testing for Patients with Depression: A Meta-Analysis

Figure 2. Sub-analysis of open-label and GeneSight® Psychotropic randomized controlled trial studies Forest plot of fixed-effects meta-analysis for the open-label and RCTs. (a) average difference in symptom improvement (b) relative risk ratio for response, and (c) relative risk ratio for remission between guided- and unguided-care. Circle size indicates weight in overall analysis.

CONCLUSIONS

- When the open-label studies were assessed separately, symptom improvement and response were significantly improved in the combinatorial pharmacogenomic-guided care group versus unguided-care group (Figure 2).
- When the analysis was restricted to RCTs, all 3 evaluated outcomes were significantly improved in the combinatorial pharmacogenomic-guided care group versus unguided-care group (Figure 2).

This meta-analysis adds to the body of evidence supporting the clinical utility of using GeneSight® Psychotropic to guide medication selection for patients with MDD who have failed at least one prior medication failure.


CONCLUSIONS