Familiarity with Psychiatric Pharmacogenomic Testing in Physicians and Advanced Practice Providers: Educational Opportunities

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Introduction. Pharmacogenomic (PGx) testing identifies individual genetic variation that may inform medication treatment. Lack of awareness and education may be barriers to implementing routine PGx testing. To characterize current PGx testing utilization and educational needs we conducted a survey of various provider types.

Methods. Healthcare providers in the primary care setting were targeted between November 2022 and February 2023 via the Medscape Members paid market research program. The survey included 5 demographic, 5 multiple-choice, and 4 multi-component five-point Likert scale questions to assess PGx sentiments, use, and education in mental health (e.g., depression) and primary care (e.g., cardiovascular disease) conditions. Responses were descriptively compared.

Results. Of 305 U.S. provider respondents [40% nurse practitioners (NPs), 33% frontline MDs/DOs, 3% physician assistants (PAs), 24% other], most indicated that they "don't use" (44-49%) or "have never heard of" (19-20%) PGx testing for mental health conditions. The most helpful sources to learn about PGx testing were accredited CE/CME activities (55-61%) and peer-reviewed publications (57-59%). Most NPs/PAs preferred webinars (62%) or online learning portal (57%) formats. MDs/DOs had no preference for webinars or learning portals over conferences, written materials, or academic presentations (45-47%). NPs/PAs were more interested in learning about PGx testing than MDs/DOs (4.29/5 vs. 3.96/5 average score).

Conclusions. These data reveal awareness level and desired learning opportunities for PGx testing between types of healthcare providers. Education should be tailored to meet providers' preferred learning formats and information sources, such as offering CE/CME through an online learning portal.

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Ketamine and Esketamine Use for Mood Disorders with Psychosis: A Systematic Review of Dissociative and Psychotic Symptoms

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Introduction. Ketamine is used off-label for suicidality and mood disorders, whereas esketamine is FDA-approved for treatment-resistant depression in adults. However, many of these studies have excluded patients with a history of or currently presenting with psychosis. A significant number of patients who have primary mood disorders with psychotic features need novel psychopharmacological interventions. We conduct a systematic review of ketamine and esketamine usage in patients with treatment-resistant mood disorders (either depression or bipolar) with psychotic features to assess the safety and tolerability of these medications in this population.

Methods. PubMed, Google Scholar, and EBSCOHost databases were searched systematically using a curated search strategy involving keywords and subheadings. A total of 199 abstracts were reviewed after duplicates and 25 full text articles were screened. All selected publications were reviewed independently by three authors. We only included non-review articles in patients with primary mood disorder presenting with psychotic features measuring dissociative and psychotic outcomes with ketamine or esketamine administration.

Results. A total of 12 articles were included: nine articles reported case reports/series and three reported observational studies. All combined, there was a total of 64 patients with depression and psychotic features and 19 adults with bipolar and psychotic features. The majority of case reports involved female adults and there was one pediatric patient of unknown sex. Either ketamine or esketamine was administered at a dose of 0.5 mg/kg for all patients, either intravenously, subcutaneously, or orally. Six articles mentioned dissociative symptoms, but only two used a validated scale, Clinician-Administered Dissociative States Scale (CADSS), to measure symptoms. While six articles reported a transient increase of dissociation during and within 2 hours of the medication infusion, no article reported sub-acute or chronic worsening of dissociative symptoms. Furthermore, one article reported a significant decrease in baseline CADSS over four weeks. 12 articles mentioned psychotic symptoms, but only three used a validated scale, Brief Psychiatric Rating Scale (BPRS), to measure symptoms. Every article reported that psychotic symptoms did not worsen. Furthermore, one article reported a significant decrease in baseline BPRS over four weeks and eight articles reported resolution of psychotic symptoms.

Conclusion. Ketamine and esketamine are being used for both depression and bipolar with psychotic features by some clinicians when other treatment modalities are not successful. This has

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usually resulted in fast recovery and maintained remission. Dissociative symptoms can be impactful near the time of infusions but resolves within a few hours in most cases. Psychotic symptoms often improve on repeated administration with none to minimal worsening during the short-term period.
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Determining Clinician Factors for Implementing LAIs and Defeating Barriers (DECIDE) Study: Describing Differences Between Clinicians Based on Their LAI Use and Archetype

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Background. Long-acting injectable antipsychotics (LAIs) reduce relapses in schizophrenia; however, most healthcare professionals (HCPs) reserve LAIs for nonadherence to oral antipsychotics (OAs) or severe disease.
Methods. US HCPs were surveyed regarding attitudes and perceptions toward LAIs for schizophrenia and LAI selection preferences. Respondents were grouped by LAI use (high [≥31% of patients using LAIs], low [≤14% using LAIs]; mid not analyzed) and archetype based on response to, "Which of the following best fits the current way you view your use of [LAIs] for your patients with schizophrenia?" (see responses below).
Results. Respondents (106 high, 130 low LAI use) were distributed across early LAI use (n=123), severity-reserved (n=88), adherence-reserved (n=113), and LAI-hesitant (n=56) archetypes.

Across all groups, HCPs estimated OA nonadherence in their practice (21%– 32%) to be lower than for patients nationwide (50%– 56%). Overall, 27% were dissatisfied with their LAI:OA use ratio, most thinking their OA use was too high. In all groups, side effects/tolerability was ranked as most important when choosing an LAI and "preference for the molecule" was ranked least important. Overall, 71%– 77% of HCPs were somewhat/much more likely to use a particular LAI based on multiple injection site options, small/on par needle, and price, and 63%– 82% of HCPs were somewhat/much more likely to select an LAI dosed once monthly or less often compared with an LAI dosed once every 2 weeks (8%). HCPs with high LAI use or early LAI use archetype were more likely to disagree that managing patients with schizophrenia increased their stress (64% and 63% vs 27%-45%, $P<.05$ each) and/or left them feeling "burned out" (77% and 79% vs 50%– 64%, $P<.05$ each).

Compared with other groups, greater proportions with high LAI use or early LAI use archetype consistently read new LAI publications (18% and 19% vs 0%– 5%, $P<.01$) and were confident in key aspects of LAI treatment (ie, dosing, managing side effects, access; 67%– 74% and 59%– 70% vs 11%– 57%, $P<.05$ each).

HCPs with low LAI use estimated the proportion of patients who initially refuse LAIs to be higher (mean, 55%) than those with low LAI use (44%, $P<.01$); there were no differences among archetypes (49%– 54%). HCPs with high LAI use or early LAI use archetype were more likely to "use any means necessary to ensure that a patient is on an LAI" vs other groups (44% and 51% vs 5%– 22%, $P<.01$ each) or had used guardianship to assist with treatment (70% and 69% vs 32%– 56%, $P<.05$ each); greater proportions with high LAI use or early LAI use archetype strongly agreed it was "worth [their] time to resolve issues with the insurance company" (42% and 45% vs 16%– 30%, $P<.05$ each) and were confident they would be able to do so (23% and 20% vs 2%– 11%, $P<.05$ each). Greater proportions of HCPs with early LAI use archetype vs the severity-reserved archetype strongly agreed that they attempt to determine the patient's/caregiver's preferred role before involving them (43% vs 27%, $P<.05$) and encourage them to participate (72% vs 57%, $P<.05$) in shared decision-making.
Conclusions. Comparing HCPs with high LAI use or early LAI use archetype vs other groups, multiple factors (eg, attitudes, preferences, training, knowledge base) combine to influence LAI use. These results highlight considerations for developing educational materials to increase LAI use in this population.
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Clinical Characteristics of a Commercial Pharmacogenetic Testing Population

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Pharmacogenetic testing is becoming more common, especially to provide guidance for psychiatric medications. Over 17 psychotropic medications currently have a Clinical Pharmacogenetics Implementation Consortium (CPIC) guideline. Several clinical trials have described PGx testing in specific patient populations, but various exclusion criteria create cohorts that may not represent real-world populations. Given the overall undefined characteristics of a real-world population utilizing commercial PGx testing, the clinical presentation of 15,198 patients that used a commercial PGx laboratory (Genomind) from October 15, 2018 through April 11, 2023 was assessed. These 15,198 patients include those whose provider conducted a clinical consultation

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