A Case Report: Exploring Efficacy of Varying Treatments Recommmended for Persistent Somatic Delusions

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Background and Purpose

- The most recent definition of delusions are "fixed beliefs that are not amenable to change in light of conflicting evidence"
- Karl Jaspers was a German-Swiss psychiatrist and philosopher who was the first to define the three main criteria: (1) certainty, (2) incorrigibility (3) impossibility or falsity of content[1]
- Types of delusions: : bizarre, non-bizarre, mood-congruent, mood-neutral
- Common themes: persecutory, jealousy, erotomanic, somatic, grandiose, religious, control, thought broadcasting, thought insertion/withdrawal, guilt or sin, delusion of infestation
- Theories of origin[2] include psychodynamic theory, anthropological theory, neurobiological theory, perceptual-cognitive theories, biographical theory and integrative theory and many more
- Multiple treatment options have been proposed for persistent somatic delusions and it may take multiple trials of medications or procedures to determine the most effective treatment for patients with somatic delusions, especially if the delusions have been present for an extended period of time

Case Description

- 45 y.o. year old, divorced male with a history of MDD and GAD who was brought to the ED by police and EMS with worsening depression, anxiety and suicidal ideation with a suicide attempt to strike himself in the head multiple times with a shovel
- Patient reports symptoms of urinary incontinence since the age of 21
- Describes urinary incontinence as a sensation of liquid accumulating in the groin area, urine running down the legs, urine dripping onto the floor and urine saturating his clothes causing discoloration
- Additional somatic delusions that the patient reported included constipation and a shrinking penis
- Patient had seen urology multiple times and told his symptoms were psychogenic
- Patient also attempted to treat urinary incontinence by using duct tape, condom catheters or Q-tips in his urethra
- Had extensive trauma history which included abandonment by his mother and physical abuse from his father; no sexual abuse
- Current substance use included alcohol with prior use of cocaine and methamphetamine
- Psychiatric ROS positive for depression with history of manic episodes and collateral from patient's former step-aunt revealed bizarre delusions when patient was in his 20s
- Diagnosed patient with schizoaffective disorder – bipolar type, OCD and alcohol use disorder

Interventions

- Treatment for somatic delusions include antipsychotics, antidepressants, mood stabilizers adjunctively with antipsychotics, CBT, metacognitive testing and ECT[2]
- Initial intervention was optimization of medications shown to be effective in improving persistent somatic delusions
- Medication changes included:
  - Increase in patient's current 10 mg dose of Zyprexa to a final dose of 30 mg
  - Starting Fluvoxamine for OCD and obsessive thinking associated with somatic delusion with increase to a final dose of 200 mg
  - Starting Clomipramine for OCD and obsessive thinking associated with somatic delusion with increase to a final dose of 200 mg
- Patient was ultimately started on ECT and completed 7 ECT sessions by day of discharge with recommendation for maintenance ECT if symptoms start to worsen again

Results

- Optimization of Zyprexa, Fluvoxamine and Clomipramine showed mild improvement in patient's somatic delusion and moderate improvement in anxiety and agitation associated with delusional content
- After patient decompensated mid-hospitalization, patient was started on ECT
- ECT resulted in moderate improvement in patient's somatic delusion of urinary incontinence and penis shrinking and resulted in nearly complete resolution of patient's somatic delusion of constipation
- On day of discharge, patient was calmer, future-oriented with goals of returning to work and living with his aunt
- Patient's somatic delusion of urinary incontinence had not completely resolved but anxiety and agitation surrounding it improved to where he can function better

Discussions

- Treatment of somatic delusions can be extremely challenging, especially if they have been present for an extended period of time
- There are multiple studies and case reports comparing different treatments and their outcomes; however, it may take multiple medication trials to find a treatment that works for the patient
- In patients with failure or suboptimal improvement of symptoms, ECT can be an effective treatment option
- Patients may not always attain resolution of their delusions which is an expectation that should be discussed with the patient
- A more realistic treatment outcome includes giving patients the tools to better manage their symptoms to ultimately improve their overall functioning

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A Case Report: Successfully Treating Painful Choreiform Withdrawal Dyskinesia and Dystonia with Benztropine in the Setting of Alcohol Withdrawal, RLS, and Neuropathy

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Background and Research:

Movement disorders can occur in EtOH withdrawal[1]. Tremor, parkinsonism, myoclonus, dystonia, orofacial TD, & choreiform dyskinesia of limbs are documented[1,2,3]. They last an avg 10-14 days after initiation of abstinence. RLS has various etiologies, some of which are thought to be dysfunctional dopamine and iron deficiency. So, with lack of dopamine (and GABA), could there be excess acetylcholine?[3,4,5] Would treating with an anticholinergic restore balance to the dopamine-acetylcholine system, and improve withdrawal/movement sx, RLS, & anxiety?[1,4,5]

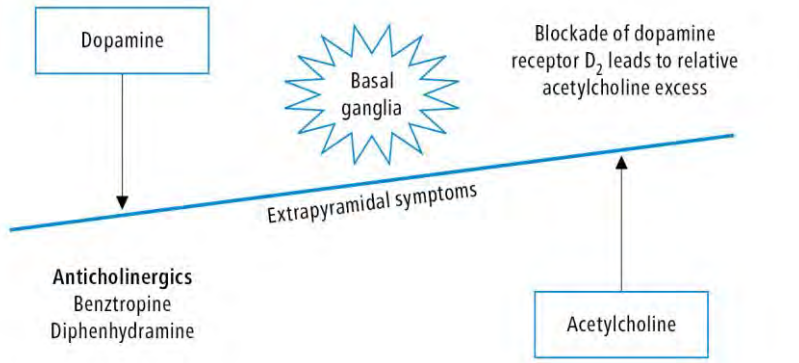

Figure 1[4]

Case:

- HPI: 72M w/ PMHx of AUD, COPD, T2DM, RLS, GAD, MDD, neuropathy admitted w/ BLE pain & poor ambulation x 9 days. Exhibited clonus + dyskinesia, along with agitation. Psychiatry consulted. Home meds of Effexor 37.5 mg + trazodone 50 mg held to r/o serotonin syndrome & because pt reported minimal benefit from them. Mirapex was also stopped one week prior in outpatient setting d/t onset of compulsive shopping behavior. Pt recently significantly increased his drinking over the last few months, to 1.5 qt 18% wine per day (previously lasted 3 days). Poor sleep & anxiety. Mild cognitive impairment.
- Exam: BUE + BLE dyskinesia, mild orofacial TD, dystonia. Painful. Slurred speech at times.
- Results: New-onset severe Fe deficiency. MRI C-Spine w/ C3-C4 severe central canal stenosis. MRI Brain w/ 4mm enhancement in Meckel's cave. EEG w/ diffuse encephalopathy.

Conclusion:

- Neurology attempted to workup MRI findings, clonus, & dyskinesia. NSGY rec decompression.
- Psychiatry theorized multifactorial etiologies: EtOH w/d, worsening RLS/neuropathy, abrupt Mirapex cessation, MRI/EEG findings, & PDD – focus on w/d symptoms, dystonia, and pain.
- Began benztropine 0.5 mg BID for anticholinergic effect + Fe supplementation
- Wife & 2 daughters were at bedside daily. Spent hours with them the day of evaluation. Wife called team the next morning to thank us profusely. Pt's pain dropped from 9/10 --> 5/10, parkinsonism largely resolved, dystonia improved approx. 50%, & pt reported better sleep. By day 10, all sx resolved, withdrawal window passed, and Cogentin was able to be discontinued.

The following information concerns a use that has not been approved by the U.S. Food and Drug Administration.

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A Case Report: Treatment Risk-Benefit in a Case of PTSD Psychosis

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Initial Presentation

62yo female with PMH of alcohol use disorder & bipolar disorder 1 with psychosis presented to the ED with visual/auditory hallucinations, abdominal pain, chest pain, self induced vomiting, and labs significant for ketoacidosis. Admitted to medicine.

- "I see Satan and he's poisoning me! I need to get the poison out!"

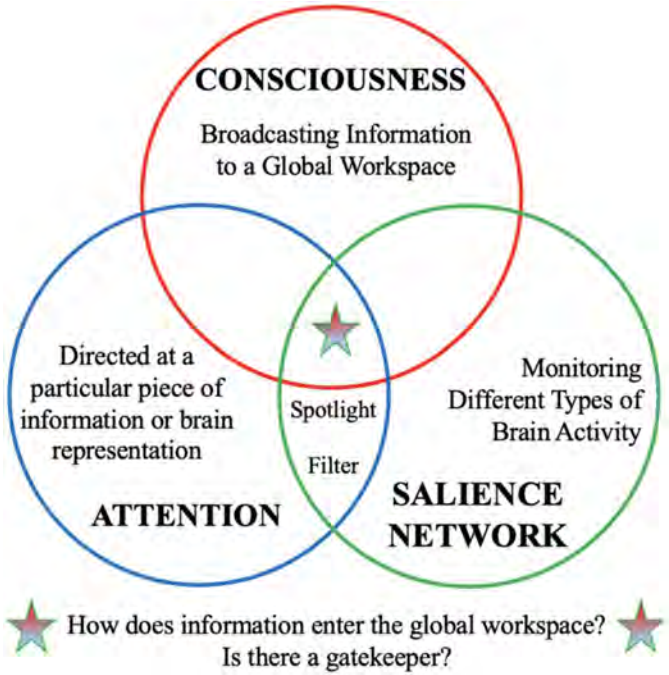

Figure 1:
Functional network model of sensory hallucinations.
(Hare, S. M. [2021]. Hallucinations: A functional network model of how sensory representations become selected for conscious awareness in schizophrenia. Frontiers in Neuroscience, 15. https://doi.org/10.3389/fnins.2021.733038)

Hospital Course

- Psych consulted first.
- Recent discharge from inpatient psych.
- Poor compliance with Buspirone, Olanzapine, Ropinirole.
- Visual/auditory hallucinations of "Satan" or little devils.
- Trauma history (abuse by past partner).
- Questionable mania history.
- Cross-tapered from olanzapine to risperidone.
- Refractory visual hallucinations, ego-dystonic.
- Neurology consulted second for possible Lewy Body Dementia.
- Suggestible olfactory hallucinations.
- Restless leg syndrome but no parkinsonism.
- Non-focal neuro exam.
- DDx: BP1 with psychosis vs. Lewy Body Dementia vs. Charles Bonnet Syndrome.

Diagnostic Work-Up

- Brain imaging negative and non-focal Neuro exam.
- EEG normal → less likely to be occipital seizures or toxic/metabolic encephalopathy.
- Exam & history not consistent w/ Lewy Body Dementia or Charles Bonnet Syndrome.
- VH refractory to phenobarbital inconsistent w/ Alcohol Use Disorder.

Assessment/Plan

- Felt to be primarily PTSD.
- Cross-taper off risperidone onto Zoloft + Atarax.
- Hallucinations resolved. Concern of exaggerating symptoms throughout hospitalization for secondary gain (Pt expressed desire for admission to inpatient psych unit).
- Discharged to outpatient therapy and med management follow-up

Discussion

- Risk/Benefit 1: addressing visual hallucinations as psychiatric, not neurologic.
  - Relied on symptom timeline & thorough neurologic exam.
- Risk/Benefit 2: discontinuing antipsychotics & starting SSRI in a patient with active hallucinations and history of bipolar diagnosis.
  - Adequately trialed risperidone before switching and reliance on literature evidence for PTSD with psychosis as emergent diagnosis.
- Risk/Benefit 3: discharging patient with recent hallucinations & PTSD to outpatient care without inpatient psych hospitalization
  - Importance of thorough suicide risk assessment with motivational interviewing.

Catatonia in Developmental Disorders: National Data

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Introduction

Catatonia is a unique neuropsychiatric condition characterized predominately by motor symptoms ranging from a stuporous to an excited form that responds well to treatment (Mormando & Francis, 2020). Catatonia has been increasingly recognized in the developmental disorder population. Studies suggest a 10-20% prevalence of catatonia in developmental disorders (Breen & Hare, 2017; Dhossche, 2004; Vaquerizo-Serrano et al., 2022). Most data derives from specialty clinics at academic centers, National data across a spectrum of health systems serving the general population are lacking.

Methods

Data was collected using the TriNetX Research Network, a national database representing approximately 117 million unique persons from 83 health organizations, of which approximately 102 million have ICD-10 diagnostic codes. Data queries were made using ICD-10 codes for catatonia (F06.1 or F20.2), pervasive developmental disorder (PDD) (F84), and Intellectual disabilities (ID) (F70-F79). Data were tabulated and summarized by year.

	Total	Lifetime Catatonia	Percent
Total	102,129,970	22,259	0.02
PDD or ID	737,422	2,414	0.32
PDD	480,095	718	0.15
ID	195,216	1,172	0.60

Results

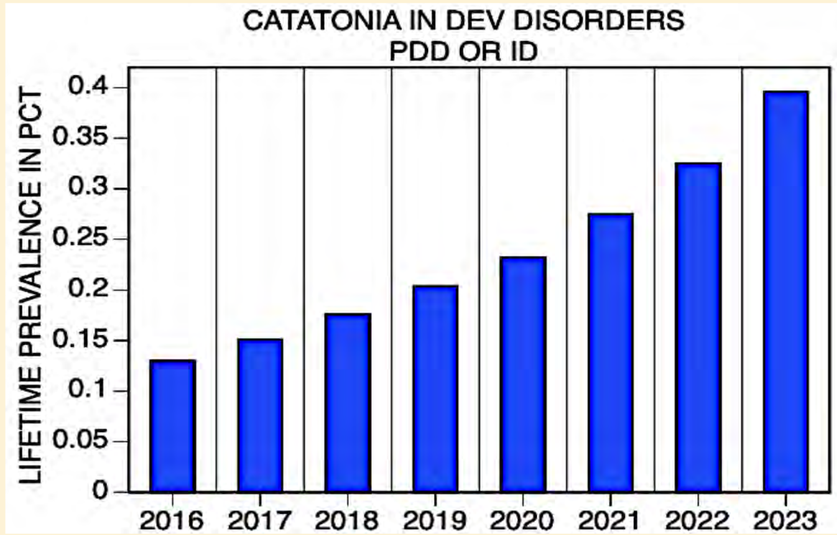
22,259 unique persons were found to have any [lifetime] diagnosis of catatonia, representing 0.02% of all subjects. The lifetime rate of catatonia in PDD or ID was 0.32% (0.15% PDD, 0.60% ID) (Table 1). The prevalence of catatonia for PDD or ID yearly from 2016-2023 was also calculated, with an increase of almost 3-fold -- from 0.13%-0.37% (Figure 1).

Discussion

These results suggest that rates of catatonia in the developmental disorder population in a national sample are less then what has been suggested from studies at specialized clinics at academic centers.

These data suggest lower recognition of catatonia in general health care settings for these DD diagnoses.

While catatonia is likely under-recognized, the data also suggest that overall recognition has been improving in recent years.



Conclusions

- ***Nationally, catatonia is under-recognized in DD***
- ***Catatonia may be better recognized within ID compared to PDD***
- ***Recognition of catatonia in DD populations is increasing in recent years***

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Down Syndrome Regression Disorder and Catatonia: A Case Report

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Background

Catatonia is a psychomotor syndrome occurring in primary psychiatric conditions, medical conditions, and neurodevelopmental disorders such as Down Syndrome (DS) and autism spectrum Disorder (1).

Down Syndrome regression disorder (DSRD) is a commonly noted though poorly understood phenomenon in Down Syndrome, wherein developmental milestones are abruptly lost (2). There is phenomenological and treatment overlap with catatonia, though the syndrome remains poorly characterized (3).

Herein, we present a case of DSRD that was later recognized and treated as catatonia to good effect, emphasizing the importance of careful screening in vulnerable populations.

Table 1: Testing for DSRD (Adapted from Rosso et al, 2020)

Endocrine Studies (Thyroid)	Further genetic testing
Electrolytes and liver function tests	Other inborn errors of metabolism
Nutritional Deficiencies (B12, B9, D)	
STI Testing	
Autoimmune studies (Lyme, PANDAS, ANA)	
EEG	

Case Presentation

The patient was a generally healthy man with DS diagnosed on prenatal screening, well-controlled hypothyroidism, and well-controlled type 1 diabetes on insulin pump. There was no prior reported psychiatric history.

The patient had subacute onset of isolative behaviors, staring, loss of multiple milestones, and idiosyncratic and bizarre use of language. Extensive neurological and medical workup across two medical admissions, including studies for acute intermittent porphyria, were negative.

On psychiatric consultation, the patient presented as bizarre with multiple mannerisms and posturing. Mental status exam also remarkable to reported hallucinations, but there was concern this was better understood as magical thinking. He was discharged on a regimen of fluoxetine 20 mg, risperidone 0.5 mg at night, and lorazepam 0.5 mg daily. Over 2 weeks, this was escalated to 9 mg daily on an outpatient basis with minimal improvement in symptoms. Direct admission from outpatient office was done for ECT consultation due to decreased oral intake and self-care.

After initial treatment, the patient's presentation was dramatically improved, and he received 4 more treatments before discharge on regimen of lorazepam 1.5 mg twice daily.

One month at the outpatient clinic, the patient still has residual abnormalities of speech and difficulty returning to work due to anxiety but was significantly closer to baseline functioning. He reported a qualia of fear while catatonic that had since resolved. Lorazepam continues to be tapered and escitalopram was started for unspecified anxiety.

Disclaimer: The authors have nothing to disclose.

Discussion

Catatonia is a complex syndrome that occurs either independently or because of complex psycho-neuro-immunological dysregulation, but it can still be effectively treated with safe modalities such as benzodiazepines or ECT (4-5).

Rosso et al identify DSRD as a syndrome most notable for behavioral finding compared to prior individual's norms and achieved milestones. There is significant definitional overlap with catatonia, namely of the stuporous type. Their paper describes tiers of medical testing for DSRD, but overt screening and treatment of catatonia is omitted. Furthermore, literature exists showing that catatonia can occur in multiple medical conditions described in their algorithm (6). Though it may be appropriate to consider catatonia an epiphenomenon of general medical conditions in certain context, it is vital that catatonia still be accurately diagnosed in the absence of clear primary medical condition, as in this case.

Learning points

Novel presentations of common psychiatric phenomenon may distract or deter less experienced clinicians.

Different literatures and nosologies may be referring to same clinical phenomenon, even if underlying causes are different.

Even bizarre or complex behaviors can be understood using principles of descriptive psychiatry, and organization or symptoms at the syndromal level provides diagnostic clarity.

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Low Dose Clozapine Associated with Rapid and Marked CPK Elevation: A Case Report

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Introduction

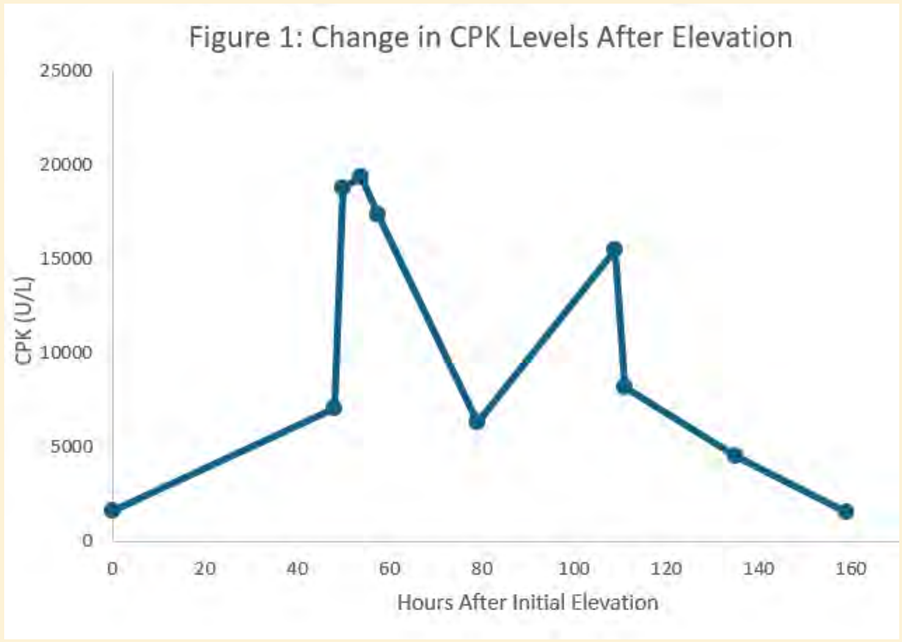
Creatinine phosphokinase (CPK) is an intracellular enzyme monitored in laboratory medicine when there is clinical concern for muscle breakdown, such as in rhabdomyolysis, MI, or other musculoskeletal pathology. Psychotropic medications may elevate CPK through multiple mechanisms. Herein, we present a unique case of marked CPK elevation associated with clozapine.

Case presentation

A 17 year-old male non-verbal male with ASD reported to the ED with signs and symptoms of the excited subtype of catatonia. This was unresponsive to high-dose lorazepam (32 mg daily), adjunctive therapies including memantine, and only partially responded to ECT in prior hospitalization. ECT was started on day 15, and clozapine was initiated at 12.5 mg daily and titrated to 25 mg daily by day 17 with some improvement in aggression, with patient needing fewer IM injections. On day 21 prior to ECT session 5, CPK was found to be elevated to 1631 U/L with escalation to 18,803 U/L by day 23. Laboratory studies including CBC, CMP, troponins, CRP, and EKG were otherwise unremarkable.

Case Continued

Clozapine was discontinued. He was transferred to the ICU for continuous sedation and IV hydration, as he would not tolerate IV placement. Troponins later peaked that day at over 19,000 U/L before slowly returning to normal apart from transient elevation on day 25. At time of poster presentation, clozapine was not renewed, and patient shows fragile gains with ECT. Further workup with a paraneoplastic panel was started to assess for underlying autoimmune or inflammatory myopathies.



Discussion

CPK elevation can be due to agitation or extrapyramidal symptoms, intramuscular injections, electroconvulsive therapy, antipsychotic-induced rhabdomyolysis, and emergencies like NMS. Atypical antipsychotics may be more likely to cause it due to action at skeletal muscle membranes (1). Specific reports have shown that clozapine is one such atypical agent that has been associated with marked CK elevation. These reports included doses of clozapine in the 200-600mg range with length of treatment being 30-50 days on a consistent dose before detection of the CK rise (2,3).

This case is novel in the severity of CPK elevation and clozapine dose preceding it. Repetitive movements may have been an etiological factor but is less consistent with magnitude of increase. Discontinuation of the antipsychotic is sufficient to resolve most cases of antipsychotic-induced CK elevation, and if risk/benefit analysis shows convincing evidence for the necessity of clozapine, re-administration with close monitoring has been trialed successfully (5).

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Lithium-induced Diabetes Insipidus or Drinking-related Stereotypical Behavior? A Case Report

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Introduction

- Catatonia is a syndrome that has unique motor and behavioral manifestations.
- DSM-5-TR requires the presence of three out of twelve symptoms for diagnosis.
- Stereotypes are defined as repetitive, abnormal, frequent, non-goal-directed movements. Recent reports described some complex presentations of stereotypies, such as polydipsia, which was resolved with the treatment of lorazepam.
- We report a case of a patient with bipolar disorder and recurrent catatonia who was stabilized on lithium. However, lithium was discontinued due to concern about polydipsia and polyuria being related to lithium-induced nephrogenic diabetes insipidus. These symptoms persisted despite lithium discontinuation and resolved with the treatment of catatonia with lorazepam.

Case Description

- A 62-year-old female with a history of bipolar I disorder and recurrent catatonia presented to the hospital with worsening manic symptoms and catatonia.
- She was maintained on lurasidone 80 mg daily and lorazepam 2 mg TID. She demonstrated mutism, grimacing, echolalia, perseveration, verbigeration, and excitement. Lorazepam was increased to 4 mg TID, and lurasidone was increased to 120 mg daily, with some improvement in her symptoms but no complete resolution.
- A review of previous medication trials revealed that her symptoms of bipolar disorder and catatonia improved with lithium six years prior. She was maintained on lithium 450 mg BID and risperidone 4 mg daily, and her corresponding lithium level was 0.7 mmol/dl. She had another exacerbation of mania with psychotic features associated with catatonia, during which she was reported to have excessive drinking and urination. No labs were drawn during that period. However, lithium was discontinued due to concerns of polydipsia and polyurea.
- Polydipsia and polyurea recurred two months after lithium discontinuation, in association with catatonia features, and resolved with the treatment of catatonia. Hence, she was restarted on lithium 450 mg daily; the corresponding level was 0.5 mmol/dl. Her catatonia and manic symptoms resolved. Lorazepam was tapered down successfully to 1 mg TID with no reports of excessive urination or drinking.

Discussion

- Recent reports described excessive drinking and urination in the context of catatonia stereotypical manifestations, which improved with using lorazepam.
- Diabetes Insipidus is an occasional side effect of lithium that can occur in 10-15% of patients receiving lithium, leading to excessive production of urine and increased thirst.
- Both presentations can be similar; poor recognition can lead to inadequate treatment.

Conclusion

- Uncontrollable repeated drinking can be a complex presentation of stereotypies in patients with catatonia.
- Polydipsia and polyuria can have variable etiology in patients with bipolar disorder receiving lithium.
- Eliciting a good history of symptoms, course, and associated presentations like catatonia in addition to laboratory workups such as lithium level, renal function, serum and urine osmolality, and serum and urine sodium levels are important for appropriate diagnosis and treatment.

Table 1 Guidance for differentiation between Lithium-induced diabetes insipidus and stereotypical drinking

Differentiating factors	Lithium-induced Nephrogenic Diabetes Insipidus	Catatonia stereotypical drinking or psychogenic polydipsia
Association with lithium	Yes	Can occur with or without lithium
Presence of catatonia symptoms	No	Yes
Serum sodium	High >146 mmol/L	Low <135 mmol/L
Serum osmolality	High ≥300 mOsm/Kg	Average or low ≤280 mOsm/Kg
Urine sodium	High >170 mmol/L	Low <10 mmol/L
Urine osmolality	High >300 mOsm/Kg	Low <100 mOsmols/kg

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A Case Report of compulsive biting and chewing with mixed amphetamine salts: Give me something to bite on

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Background

- Stimulants are the first line pharmacological treatment for ADHD.
- Compulsive behaviors and movement disorders are reported to a limited degree as side effects of stimulants.[1,2]
- We present a unique case of a patient who developed a biting and chewing compulsion when taking mixed amphetamine salts (MAS).

Case Summary

32 year-old female with psychiatric diagnoses of PTSD, GAD, ADHD and unspecified bipolar disorder presented with irritability. Historical medications buspirone 7.5 mg bid prn anxiety and lorazepam 0.5 mg qday prn anxiety were continued. Below is the course of treatment.

MAS XR 10mg discontinued & titrated lamotrigine to 25 mg bid

- Mood stabilized

Started MAS IR 2.5 mg daily for ADHD

- Tolerated well
- No significant effect on ADHD

Increased MAS IR to 5 mg daily

- Uncontrollable urge to chew and bite within 1-2 hours of medication
- Lasted 1-2 hours
- Significant anxiety if resisting urge

Decreased MAS IR to 2.5 mg daily

- No urge to chew or bite

Re-trialed MAS IR 5 mg daily

- Urge recurred
- Despite urge, patient continued daily dose
- Side effect attenuated and resolved after 1 week

Discussion

- While underlying mechanisms aren't known, repetitive behaviors have been induced by variable doses of methylphenidate and d-amphetamine in rats.[3]
- Tmax is approximately 7 hours for MAS XR formulation as compared to 3 hours for IR formulation, possibly contributing to side effects.[4]
- After 5 half-lives, plasma concentration reaches a steady state potentially leading to dissipation of the side effect.[5]

Conclusions

- Compulsive chewing/biting can occur as a side effect of mixed amphetamine salts
- Underlying mechanism to the onset of these compulsions is unknown
- The side effect may dissipate with time, change in dose or formulation

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Barriers to psychiatric care and placement in patients with ASD presenting to the ED for behavioral health concerns

Moises Santana, MD, Dallas Hamlin, MD, Daniel Rodriguez, CRNP, Andrew Francis, MD, PHD

Penn State College of Medicine

INTRODUCTION

Recent challenges to the healthcare system including the COVID-19 Pandemic have revealed deficiencies in our care systems for individuals with psychiatric illness. In particular, disposition of patients with Autism Spectrum Disorder (ASD) presented a regular challenge to our institution's Emergency Department (ED). This is consistent with national data suggesting that psychiatric patients in EDs typically have longer lengths of stays (1). Unfortunately, individuals with ASD may be especially vulnerable given differences in emotion regulation, sensory processing, and difficulty accommodating to change in a new setting such as an ED (2). To better characterize this problem, our research group reviewed local ED on the psychiatric and behavioral outcomes of individuals with ASD presenting with psychiatric concerns.

CASES AND DATA

The study was a retrospective chart review during the year 2023. IRB approval not obtained as this is part of an ongoing QI project. The case record of the CL service at the Milton S Hershey Medical Center was manually reviewed by one of the authors (DR). Cases of individuals with ASD were noted when the ED reached out to the psychiatry service for consultation. Data on the hospital course including patient gender, age, length of stay (los) in the ED, number of referrals, number of behavioral codes requiring security staff, and ultimate disposition were noted.

75 total number of relevant cases were noted. Data is summarized graphically to the right in Figure 1.1. The patients were on average 17.1 years old, with a length of stay of 57.2 hours with 24% of patients requiring security intervention at some point. Over 2/3rds of patients were ultimately discharged to home. Patients discharged home had no substantial changes in their current level of support and resources in the community. Common barrier in disposition included no available beds, facilities not able to accommodate their level of functioning and independence with ADLs, not able to accommodate current level of acuity and multiple others.

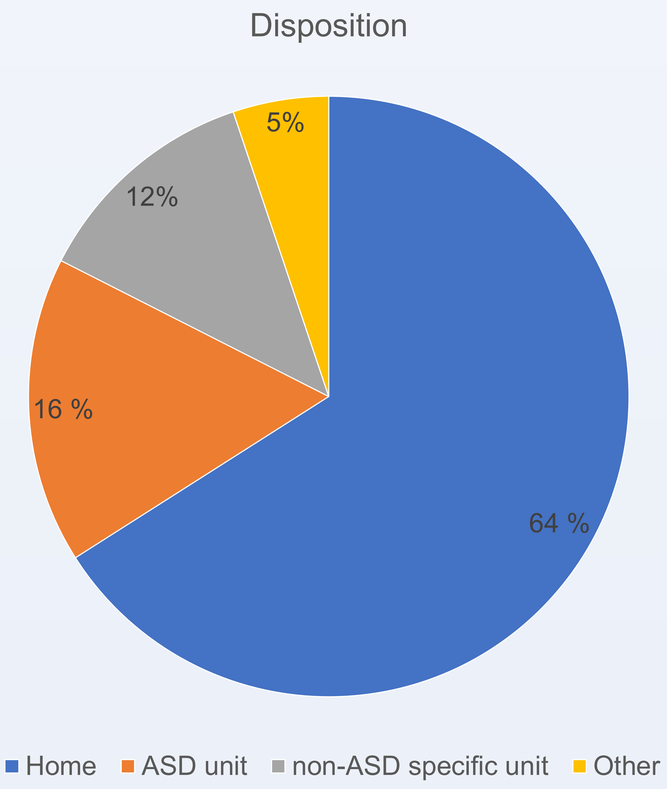
DISCUSSION

- Patient with any mental health diagnosis, have prolonged length of stays in the ED, especially with co-occurring mental health and substance use disorder and those required transfers to other facilities. [1]
- Patient in the ED with ASD face more challenges including crowded waiting areas, noise, and physical restraints as well as prolonged length of stays. [2]
- Delays in care and prolonged length of stays were an issue before for patient with neurodevelopmental disorders but have increased since the Covid19 pandemic. [3]
- One common barrier often found for appropriate and timely care, is the limited availability of community-based resources, that would be able to divert psychiatry-related visits to the ED. [4]
- Overall, the research in this topic is limited, and requires further investigation, to find better strategies and avoid unnecessary visits to the ED, prolonged length of stays and hospitalizations for patients with ASD. [5]

Average Length of Stay
57.2 hours

Average Number of Referrals
19 hospitals

Security Involvement
24 percent of admissions



CONCLUSIONS

Efficient care of individuals with ASD remains a clinical issue, and bottlenecks and multiple points after ED presentation compound issue. This increases risk of behavioral disturbance, which worsens likelihood of successful placement. The data reflects limited clinical intervention apart from respite for majority of included patients. This does not mean that behaviors did not warrant inpatient admission, but rather change was able to be actualized in a sub-optimal setting, which has important resource utilization implications. While ED not an ideal treatment setting, this begs the question if clinical workflow can be adjusted to better accommodate needs of individuals with ASD and/or neurodevelopmental disorders. This is concordant with inpatient literature regarding potential utility of proactive behavioral health consultation (3). Ongoing interventions also include embedding of a masters-level therapist in the emergency department, advanced training for nursing and management staff, and improved functional connectivity with local psychiatric hospitals to improve referral pipeline.

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Abnormal Movements Secondary to Anoxic Brain Injury

– Namdi Nwasike, MD and Shanthi P. Lewis, MD

1.) Case Report

An elderly female presented to the ED unresponsive after cardiac arrest. This was caused by long QT with Torsades or pause dependent Torsades, thought to be induced by Quetiapine. She was initially intubated and on a ventilator. She was seen by neurology, had CT-H and brain MRIs done, which revealed hyperintensities in the bilateral thalami, caudate nucleus, and dentate nucleus. She was diagnosed with anoxic brain injury. After being extubated, she was non-verbal and exhibited chorea-like movements, likely due to anoxic brain injury, although Tardive Dyskinesia was considered as the patient scored 21 out of 28 on the AIMS. The ICU team managed her movements with Dexmedetomidine. Psychiatry was consulted to manage medications, and Valproate was started in lieu of Quetiapine.

The patient's cognition slowly improved over the course of 2 weeks, and eventually she was able to speak in whispers. One day she expressed suicidal ideation, without intent or plan, because she believed her health was not improving. She developed short-term memory loss and couldn't remember when her family visited her, thus she felt isolated. A suicide risk assessment was performed, using the CAIPS format. Patient was deemed to not require a 1:1 for SI, given that she did not remember making those statements, and continuously denied SI thereafter. Psychiatry was reconsulted to do a capacity assessment regarding medical decision-making for a surgery, and patient was deemed to lack capacity. Her family agreed on the operation. She was eventually discharged to inpatient rehab after a month-long hospitalization.

2.) Outcome

Patient's chorea-like movements significantly lessened, and she regained her ability to speak. However, she retained deficits in attention/concentration, delayed recall, and short-term memory by the time she was discharged.

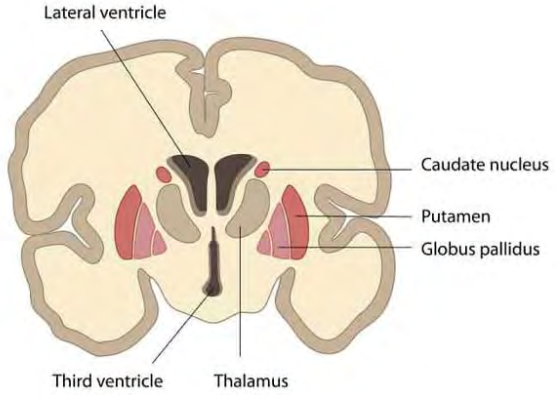

Figure 1. The caudate nucleus and the thalamus .) Hunt, Will, and Yuri Sugano. "The Basal Ganglia - Direct - Indirect - Nuclei- TeachMeAnatomy." *Teachmeanatomy.info*, 2018, teachmeanatomy.info/neuroanatomy/structures/basal-ganglia/. Accessed 26 Oct. 2023.

3.) Discussion

The caudate nucleus is involved with the execution of movement, learning, and memory. The dentate nucleus is involved with fine control of voluntary movements, cognition, language, and sensory functions. Given that the patient had hyperintensities in both nuclei, we hypothesize that the damage here was responsible for her deficits in speech, memory, and her chorea-like movements. Her movements resembled Tardive Dyskinesia (TD), which is characterized by facial/oral movements (such as grimacing, tongue probing), extremity movements (such as choreic or athetoid movements), and trunk movements (such as rocking or twisting.)

The AIMS is a 12-item tool that assesses TD. We were initially suspecting TD, and our patient scored 21 out of 28 on the AIMS. However, given the patient's medication history, anoxic brain injury was more likely to be the cause of her movements. The CAIPS format was chosen for suicide risk assessment due to its thoroughness, as it involves looking at chronic risk factors, acute risk factors, imminent warning signs, protective factors, and writing a summary statement.

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Title: Risk Analysis of Development of Delirium and Seizures in Patients Treated with Meclizine vs. Scopolamine for Nausea: Cohort-based Retrospective Comparative Study

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Introduction

- Nausea is one of the most widely represented symptoms in many conditions, including but not limited to psychiatric diseases and neurologic abnormalities. In the realm of antiemetic therapy, the management of nausea is particularly important in individuals prone to motion sickness.
- Meclizine and scopolamine are medications that are often prescribed to alleviate symptoms of nausea. Despite their widespread use, there exists a paucity of comparative studies evaluating the associated risks of developing delirium and seizures with these medications.
- This study aims to bridge this gap by conducting a risk analysis of the potential adverse effects of scopolamine and meclizine treatments.
- Understanding the comparative risks of delirium and seizures associated with these medications is imperative for clinicians in making informed decisions regarding the optimal pharmacotherapeutic approach to prevent psychiatric and neurologic side effects.

Methods

- A retrospective data collection was carried out through TriNetX, a database encompassing patients' clinical data from 92 healthcare organizations.
- Two cohorts were drawn to compare: Cohort 1 with a diagnosis of nausea (ICD-10 code R11) and use of meclizine (RXNORM code 6676) and Cohort 2 with a diagnosis of nausea (ICD-10 code R11) and use of scopolamine (RXNORM code 9601).
- The time window for the development of delirium (ICD-10 code R41 "Other symptoms and signs involving cognitive functions and awareness") and seizure (ICD-10 code R56 "Convulsions, not elsewhere classified") was set to 30 days from the index event.
- Propensity score was matched for age at index event, gender, race, and ethnicity to eliminate confounders, and statistical risk analyses were performed.

Cohort 1 (N = 371,502) and cohort 2 (N = 371,502) characteristics after propensity score matching

Demographics

Cohort			Mean ± SD	Patients	% of Cohort	P-Value	Std diff.
1	AI	Age at Index	52.0 +/- 18.1	371,502	100%	0.125	0.004
2			51.9 +/- 18.0	371,502	100%		
1	F	Female		272,478	73.3%	<0.001	0.018
2				269,549	72.6%		
1	2054-5	Black or African American		48,464	13.0%	0.445	0.002
2				48,686	13.1%		
1	M	Male		88,452	23.8%	<0.001	0.019
2				91,532	24.6%		
1	2106-3	White		253,424	68.2%	<0.001	0.013
2				255,610	68.8%		
1	1002-5	American Indian or Alaska Native		1,572	0.4%	0.957	<0.001
2				1,575	0.4%		
1	UNK	Unknown Race		43,322	11.7%	<0.001	0.016
2				41,475	11.2%		
1	2076-8	Native Hawaiian or Other Pacific Islander		1,320	0.4%	0.143	0.003
2				1,246	0.3%		
1	UN	Unknown Ethnicity		68,544	18.5%	<0.001	0.014
2				66,514	17.9%		
1	2186-5	Not Hispanic or Latino		271,788	73.2%	<0.001	0.016
2				274,404	73.9%		
1	2135-2	Hispanic or Latino		31,170	8.4%	0.014	0.006
2				30,584	8.2%		
1	2131-1	Other Race		13,734	3.7%	0.013	0.006
2				13,335	3.6%		
1	2028-9	Asian		9,666	2.6%	0.506	0.002
2				9,575	2.6%		

Table 1: Propensity score matching criteria applied for risk analysis of delirium (ICD-10 code R41)

Cohort 1 (N = 371,502) and cohort 2 (N = 371,502) characteristics after propensity score matching

Demographics

Cohort			Mean ± SD	Patients	% of Cohort	P-Value	Std diff.
1	AI	Age at Index	52.0 +/- 18.1	371,502	100%	0.125	0.004
2			51.9 +/- 18.0	371,502	100%		
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2				30,584	8.2%		
1	2131-1	Other Race		13,734	3.7%	0.013	0.006
2				13,335	3.6%		
1	2028-9	Asian		9,666	2.6%	0.506	0.002
2				9,575	2.6%		

Table 2: Propensity score matching criteria applied for risk analysis of seizure (ICD-10 code R56)

Results

- For the outcome of delirium, 371,502 patients were identified after matching for propensity score, after which 42,552 and 48,378 patients were excluded from cohorts 1 and 2, respectively, due to their outcome having occurred prior to the time window.
- The remaining patients were included in their respective cohorts, and the results showed a lesser association of developing delirium in the cohort treated with meclizine when compared to the cohort treated with scopolamine for nausea (**OR [95%CI] 0.814 [0.773-0.857]**).
- Meanwhile, for the outcome of seizure, 371,502 patients were identified after matching for propensity score, after which 18,225 and 20,612 patients were excluded from cohorts 1 and 2, respectively, due to their outcomes having occurred prior to the time window.
- There was no greater association of developing seizures in one cohort compared to another (**1.003 [0.915-1.100]**).

Discussion & Limitations

- Scopolamine is regarded as having higher efficacy towards treating nausea and vomiting compared to meclizine, but the associated risk of developing delirium was significantly lower for meclizine.
- This study is limited in only understanding the association between the risk factor and outcome due to the unavailability of specific patient data.
- This study also did not investigate the administration of multiple medications for nausea and vomiting, which could lead to variable results.

Conclusion

- This TriNetX-sourced study demonstrated a statistically significant higher association of developing delirium when using scopolamine compared to meclizine for nausea treatment, while it did not elicit such an association for the development of seizure.
- This study could be further expanded by investigating specific cases where patients developed adverse outcomes after being administered these medications to understand possible causation.

Case Report: Melancholia Agitata Improving on Olanzapine

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PennState Health

Background

- Agitated depression or Melancholia agitata is a mixed state of depression characterized by a depressed or anxious mood, inner agitation, psychomotor agitation, irritability, mood lability, or suicidal thoughts
- Associated with a high risk of suicide
- Extensive debate regarding the classification of agitated depression led to the removal of agitation criteria for major depressive disorder in the DSM further complicating diagnostic clarity and treatment (1)
- Often treated with anti-depressants as patients fit criteria for a major depressive episode, however, anti-depressants have been shown to worsen these mixed states
- Treatment with lithium, benzodiazepines, antipsychotics, anti-epileptics and ECT led to markedly improved symptoms in patients with agitated depression (2)
- We present a case of a patient with melancholia agitata whose symptoms worsened with lurasidone and dramatically improved upon acute treatment with olanzapine and lorazepam

Case Report

- 71-year-old male with a medical history of right carotid stenosis and coronary artery disease s/p stenting and a past psychiatric history of bipolar disorder that was chronically managed on alprazolam 0.25 mg thrice daily
- he had worsening of symptoms as he initiated self-taper of medication with suicidal ideation and homicidal ideation towards family
- Initial examination revealed low mood, irritability, restlessness, thought blocking, apathy, low energy, terminal insomnia, and weight loss
- Psychomotor symptoms and agitation were mildly improved with the reintroduction of alprazolam
- Had worsening in agitation, verbal aggression, anxiety, and sleep with the introduction of nortriptyline, with improvement following prompt discontinuation.
- Had a similar intolerance of lurasidone 20 mg daily with worsening symptoms the next day
- Alprazolam was transitioned to lorazepam due to a more favorable pharmacokinetic profile on which he remained stable
- Patient greatly improved on Olanzapine 5 mg at bedtime alongside lorazepam 0.5 mg twice daily

Discussion

- Kraeplin's model of manic-depressive illness recognized that the polarity of mood, psychomotor, and thought symptoms could be discordant in the setting of a single episode and fluctuate
- The criteria developed by koukopoulus et al 2007 prompted an alternate model for classifying depressive mixed states focusing on psychic agitation, irritability, and mood lability, with or without further excitatory symptoms (3)
- This can be seen in patients with major depressive disorder who have never met DSM-5-TR criteria for bipolar-spectrum illness
- Misdiagnosis of agitated depression can significantly impact patient prognosis as this form of depression can worsen with antidepressants
- Antipsychotics have data for efficacy, but the choice of the agent can be difficult (4)
- This case uniquely shows that lurasidone may be less effective in agitated depression, which may be attributable to the activity of the 5HT-7 receptor
- Olanzapine may warrant further study in the setting of this unique subtype of depression

Conclusions

- Agitated depression can improve with lithium, benzodiazepines, antipsychotics, anti-epileptics and ECT
- Olanzapine is shown to be effective in the treatment of agitated depression
- Lurasidone can worsen agitated depression
- As this subtype of depression increases the risk of suicide, further studies on treatment options are necessary

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Design and Implementation of a jumpstart course in counseling techniques for first year psychiatry residents with a focus on Motivational Interviewing (MI)

Mark T. Shephard, DO, MS

Background:

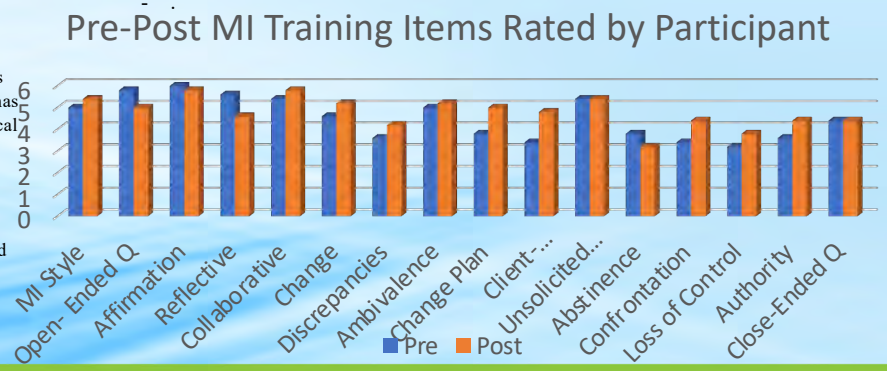
Psychotherapy and counseling are a fundamental skill set required for a resident in psychiatry and psychiatrist to communicate effectively with patients and guide patients toward behavioral change. Despite this importance, medical student exposure to psychotherapy is minimal, at best, prior to starting a residency[1].While medical students have a positive attitude toward the idea of psychotherapy, when later practicing as a physician, they are unlikely to use it or refer patients for it[2]. Psychiatry residencies are required to develop competences in certain psychotherapy modalities (Brief, CBT, Combined Therapy-Psychopharmacology, Psychodynamic, Supportive), however there is much variability in how supported residents feel and how much emphasis is placed on these skills in individual programs. While resident self-assessed competence in psychotherapy skills is low at the beginning of residency, it appears to increase through the four-year curriculum[3].

Motivational interviewing (MI) is a counseling technique which fundamentally views the patient with their own capability to change and utilizes specific communication skills to help guide the patient toward change[4]. Originally developed in the substance use disorder arena, MI has been shown to be effective in addressing many health-related issues and has been applied to other areas such as primary care[4,5]. Although some medical schools introduce MI to students, this counseling style requires continued dedication of practice to gain competence[4]. The fundamentals of most psychotherapy modalities are often considered to be competing skill sets, however MI is a great starting point for anyone aspiring to do counseling, because it provides skills that can be transitioned into other modalities and compliment other psychotherapies[6].

Providing some of these basic skills and techniques to new residents will give them a jumpstart to their counseling competence.

Method/Design:

A curriculum was developed primarily based on the book Motivational Interviewing for Clinical practice with additions and supplements added from SAMHSA - Motivational Interviewing Assessment: Supervisory Tools for Enhancing Proficiency, and Intentional Interviewing and Counseling text. Guided and taught by writer; topics included an overview of MI, and thorough exploration of the four key pieces of the process of MI: engaging, focusing, evoking, and planning - basic skills required to adequately perform these processes were explored. A pre/post self-assessment survey was adapted from the self-assessment tool in SAMHSA supervisory tools and completed by participants.



Conclusion:

- Improvement: MI Style, Change talk, Discrepancies, Ambivalence, Change plan, Client-centered problem discussion
- No change: Unsolicited advice, Close-Ended Questions
- Decline: Open-ended Questions, Affirmations, Reflections, Confrontation, Loss of Control, Authority

Limitations:

- Small sample size
- Time-limited implementation
- Not all interns attend all sessions due to schedules
- Pre/Post Survey are self-report
- Case discussions were unobserved interactions
- Interns > 6 months into residency

Future Directions:

- 4 week – 1 hour course followed by longitudinal follow-up
- Observed mock sessions with real time feed back
- Assessment tool for patient ratings
- Curriculum specific to effective psychotherapist skills

References:
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Lehigh Valley Health Network

Managing the Psychiatric Comorbidities of a Patient with Primary Angiitis of the Central Nervous System (PACNS): A Case Report and Review of the Literature

Robyn A. Panchaud MD, Max Joseph BS, Maggie Driscoll MD, Ralph A. Primelo MD

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USF Health Morsani College of Medicine, Tampa, FL

Introduction and Background

- PACNS is a rare inflammatory condition of the blood vessels affecting the brain and spinal cord with an estimated incidence of 2.4 cases per 1,000,000 person-years.[1]
- The clinical manifestations of the disease at the time of onset include but are not limited to headache, stroke, hemiparesis, visual symptoms, and aphasia. [2]
- Although little is known about the effects of this condition on patient mental health, a 2019 cohort study found that the incidence of clinical depression was 30% in PACNS cases and 70% of PACNS patients experienced anxiety.[3]

Case Presentation

- A 48-year-old man with a past medical history of PACNS, hypertension, heart failure with reduced ejection fraction, major depressive disorder, generalized anxiety disorder, chronic back pain, and multiple cerebrovascular accidents (CVAs) presented to the Lehigh Valley Health Network Behavioral Health Unit via the Emergency Department due to increased depression, anxiety and suicidal ideation with multiple plans.
- Patient's mental health had been declining over the course of the preceding 18 months since receiving his diagnosis of PACNS following his first CVA.
- Patient had acute worsening of his mood in the 3 months preceding his inpatient admission.
- Upon admission, in addition to continuing his home medications for his medical comorbidities, patient was restarted on his psychotropic home medications which included valproic acid (250mg daily, 500mg nightly), trazodone (100mg nightly), and clonazepam (0.5mg PRN TID).
- Patient was initially started on duloxetine; however, this medication was subsequently discontinued to minimize the risk of potential vasoconstriction considering patient's history of PACNS.
- Following consultation with the Neurology and Cardiology services patient was ultimately stabilized on escitalopram (20mg nightly) in addition to his home medications.

Patient Perspective:

- "In the future, maybe the care team should try to get additional family involvement on board sooner for someone like me who is so dependent on their family."

Discussion

- Although it would typically be appropriate to utilize duloxetine in the treatment of a patient with chronic back pain, depression, and anxiety, for the patient with comorbid PACNS, the use of serotonin norepinephrine reuptake inhibitors such as duloxetine should be avoided due to potential vasoconstriction which may contribute to CVA.
- Similarly, while methylphenidate is sometimes combined with anti-depressants to augment response in cases of treatment resistant depression, in considering the use of a stimulant for a patient with PACNS, it must be considered whether or not the benefits outweigh the risks.

Conclusion

- PACNS is a rare vasculitis for which the psychiatric sequelae have only recently been characterized in the literature.
- The management of PACNS requires a multidisciplinary approach and input from several medical specialties can be beneficial in choosing the most appropriate treatment for the psychiatric comorbidities of this disease.

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Describing the role of the exposome to explain variance in youth suicide attempts: individual level psychosocial exposome

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Abstract

Background: Suicide is the second leading cause of death among youth in America, yet the reasons for variance in suicide attempts are not clear. The network of environmental exposures and social determinants of health is termed the "exposome", and has major contributions to mental health burden and suicide risk specifically. Here, we looked at the exposome and its effects on explaining suicide attempts in two large diverse samples of US youth.

Methods: We analyzed data from the Adolescent Brain Cognitive Development (ABCD) Study that includes N=11,876 youth of whom >3% (n=354) reported history of suicide attempt by age 12. The ABCD study collected data on n=598 individual-exposome measures. We also looked at the data from the Children's Hospital of Philadelphia emergency department (CHOP-ED) dataset which includes N=19,879 youth of whom n=2,025 reported past suicide attempt, and this comes out to around 10.2% of the dataset.

Results: Of the 598 individual level exposures in the ABCD study, over 300 were significantly associated with suicide attempt after correcting for multiple comparisons. The CHOP-ED dataset showed that endorsement of both sexual and physical abuse was most correlated with suicide attempts. Both the ABCD study and the CHOP-ED dataset showed that endorsement of experiences that involved assault were the most associated with suicide attempts.

Discussion: Our findings further support the fact that individual-level adverse exposures in adolescence are associated with suicide attempts. The results highlight the role of the exposome in explaining variability in youth suicidal behavior, and we stress the importance of comprehending more exposome trends.

Introduction

Suicide is a major health problem among youth in America, and there are developmental effects during adolescence as suicidal behavior rises. This steady increase seen in suicide is correlated with a variety of factors including biological and environmental factors. Since the etiology of suicide is still not full understood, it is important to examine the multifactorial nature of this behavior. The exposome looks at the intersection between social determinants of health and environmental factors, and it has been shown to have influence on the mental health of adolescents. The exposome is key to comprehending suicide risk, and differences at an individual level can explain disparities in suicide attempts. Here we ask the question: How do exposome factors shape trends in suicide attempts in youth? The use of longitudinal data with the ABCD study will eventually put this work here at a unique position to help predict future suicide attempts rather than just explain them.

Methods

The ABCD Study:

Data from this study has been utilized to assess environmental risks and protective factors regarding suicide in youth, so it was in a suitable position to continue our work looking into specific individual exposures that could help explain suicide attempts. This study provided a sample that is large and diverse including N=11,876 youth with n=354 participants endorsing suicide attempt by the age of 12 which makes about 3.4% of the sample. Individual-level exposome measures (n=598) were collected from the data.

Methods

Total Sample N=11,876	Mean/n	SD/%
Age, y	9.9	0.6
Sex, Male	6,195	52.2%
Sex, Female	5,681	47.8%
Race, American Indian or Alaska Native	410	3.5%
Race, Asian	751	6.3%
Race, Black	2,518	21.2%
Race, Multiple Races	1,434	12.1%
Race, Native Hawaiian/Other Pacific Islander	74	0.6%
Race, Other	800	6.7%
Race, White	8,804	74.1%
Ethnicity, Hispanic	2,411	20.6%

Table 1: *Demographics of the ABCD Study at baseline assessment.*

The CHOP-ED Dataset:

This dataset includes data from youth at the Children's Hospital of Philadelphia emergency department (CHOP-ED) between 2014-2019 (N=19,879). Using behavioral health surveys, data on their individual-level exposures to adversity were analyzed from the electronic health record. These surveys are routinely administered and also provided information on their endorsement of suicide attempts at any point in their lives. In this sample, n=2,025 youth reported past suicide attempts which is about 10.2% of this dataset.

Total sample N=19,879	Mean/n	SD/%
Age, y	15.3	1.53
Sex, Male	6883	34.60%
Sex, Female	12,996	65.40%
Race, American Indian or Alaska Native	10	0.10%
Race, Asian	510	2.60%
Race, Black	11,175	56.20%
Race, Multiple Races	218	1.10%
Race, Native Hawaiian/ Other Pacific Islander	11	0.10%
Race, Other	1,440	7.20%
Race, White	6,512	32.80%
Ethnicity, Hispanic	1,393	7.00%

Table 2: *Demographics of the CHOP-ED Dataset.*

Results

Associations of Individual-Level Exposome with Suicide Attempt – ABCD Study

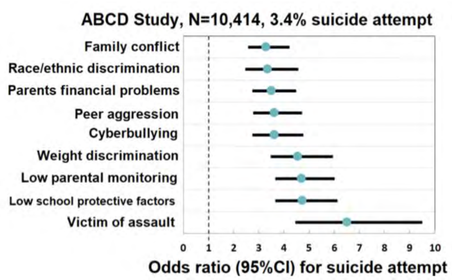

Figure 1: *Associations of individual-level adverse exposures with suicide attempt in ABCD Study (suicide attempt reported by the 3rd assessment, mean age 12). Exposures were included in logistic regression models separately. The logistic regression included the environmental exposure as the independent variable and suicide attempt as the dependent variable. Models co-varied for age, sex and race, site, and family relatedness.*

In the ABCD dataset, endorsement of "victim of assault" is the most correlated with suicide attempt with endorsements of family conflict, race/ethnic discrimination, parental financial problems, peer aggression, cyberbullying, weight discrimination, low parental monitoring, and low school protective factors among the other few of the more significantly correlated measures. More than 300 individual-level exposures were found to be significantly associated with suicide attempts out of the 598 measures analyzed with this study.

Associations of Individual-Level Exposome with Suicide Attempt – CHOP-ED Dataset

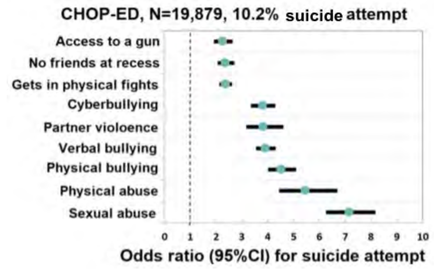

Figure 2: *Associations of individual-level adverse exposures with suicide attempt in CHOP-ED dataset (mean age 15). Exposures were included in logistic regression models separately. The logistic regression included the environmental exposure as the independent variable and suicide attempt as the dependent variable. Models co-varied for age, sex and race.*

In the CHOP-ED dataset, endorsement of "sexual abuse" is the most correlated with suicide attempts with endorsements of physical abuse, physical bullying, verbal bullying, partner violence, cyberbullying, getting in physical fights, no friends at recess, and access to a gun among the other few measures that are more significantly associated.

Discussion

Seen in both the ABCD and CHOP-ED studies, there are a number of key exposures that help to explain future suicide attempts. As previous literature has shown, endorsement of factors related to assault, both sexual and physical, have been the most correlated with suicide attempts. Generally, our findings here further support the fact that individual-level adverse exposures in adolescence are associated with suicide attempts and add to an individual's exposome. The exposome is a unique tool that will continue to help build on reasonings for various aspects of adolescent mental health. In 2019, suicide was the second leading cause of death in American adolescents with the eventual pandemic only making mental health statuses worse across the board. Explanation of the variation in suicide attempts is yet to be understood fully, and it is crucial that we work to comprehend the trends more comprehensively. Considering this, it is critical that we continue to find new ways to help explain suicide attempts and eventually help predict them as well.

Future Prospects

After analyzing these datasets preliminarily, we are excited about the ways in which the individual-level measures can help to predict future suicide attempts. The ABCD study is projected to last until 2027, by which all participants who endorsed suicide attempts before 12 will reach the age of 17. The CHOP-ED dataset will increase by about 3,000 youth per year which will strengthen the sample and provide more data to investigate the exposome further. We have been looking into structural-level exposures using geocoded data, and we have started to see that the general socioeconomic level and vulnerability of the community in the face of disaster are important measures when considering suicide attempts among their youth. Geo-coded measures are also associated with suicide attempt, and they may be useful to explain variance in suicide attempt more than individual-level exposures. Environmental stressors based on zip code have not been studied in great detail, so the geo-coded data will be helpful in starting to explain these relationships.

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A Case Report: Baclofen Withdrawal causing Altered Mental Status

Neisan Sabet, DO, Shanthi P. Lewis, MD, Rory L. Marraccini, MD, Jeff Burdette, DO

Introduction: Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS) characterized by progressive demyelination. It can affect any part of the CNS but has a predilection for the white matter tracts of the cerebral hemispheres, optic nerves, brainstem, cerebellum, and spinal cord. MS patients experience high rate of depression as lifetime prevalence of ~50% and annual prevalence of 20%. There is some evidence that depression in MS is associated with greater neuropathology in the left anterior temporal/parietal region. There is some association between depression and the presence of hypointense T1 lesions, severity of depression was also correlated with measures of frontal lobe and third and lateral ventricular atrophy. The failure to find a link between depression and hyperintense lesions shows that severe and persistent mood change was more likely a consequence of chronic and destructive brain changes. It is challenging to determine whether certain symptoms relate to depression or to MS. The most widely cited example is fatigue. Other potential confounders are Insomnia, Altered appetite Impaired memory and concentration. To minimize this possibility greater weight can be assigned to the presence of depressive beliefs and anhedonia. Data suggest that over a quarter of MS patients contemplate suicide. 3 Risk factors are the presence of major depression, the severity of the depression, social isolation alcohol abuse. While only a minority of suicidal patients will act on their intent, the frequency of completed suicide in individuals with MS exceeds chance. Young male within the first 5 years of diagnosis are at risk the most

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Objective: this report will review a case of iatrogenic psychosis in MS patient due to missing of baclofen. A literature review on depression and suicidality in MS patient and effect of baclofen withdrawal.

Case: 54 yo female PMH of MS, MDD, GAD, CHF, HTN, venous stasis, neurogenic bladder with multiple prior UTIs on catheter, ambulatory dysfunction wheelchair-bound with spastic diplegia who presents to ED for generalized fatigue. Patient home medication included Baclofen 20 mg QID, Zolpidem 10 mg, Venlafaxine 375, Gabapentin, Tizanidine 6 mg TID. On admission CXR of lungs clear, CT head wo contrast no acute intracranial abnormality, Urinalysis negative, Respiratory Viral panel negative, UDS negative, CMP unremarkable, Lactate 0.7, CBC WNL, X-ray of the R foot soft tissue swelling, may indicate either reactive osteopenia or early osteomyelitis. Received Cefepime, vancomycin and 2L NS Bolus, Admitted to ICU for hypothermia of unknown origin, Moved back to Telemetry unit after few hours when body temperature stabilized. Psychiatry was consulted because patient developed AVH and persecutory delusion. Remeron, Ambien and Ativan discontinued, and Zyprexa 2.5 mg started and as symptom worsen increased to 5 mg. On day 6 patient developed horizontal nystagmus and eye fixation to the back of head. It was found that patient has not received Baclofen since this admission as it was ordered as PRN. After initiation of baclofen patient mental status rapidly improved in 24 hrs and patient became alert and oriented X4 and was talking in meaningful way and VH stopped.

Discussion: In MS Lesions in the brain (cerebral spasticity) or the spinal cord (spinal spasticity) permit uninhibited lower motor neuron activity and lead to spasticity. Baclofen acts as a γ-aminobutyric acid agonist to inhibit the monosynaptic and polysynaptic reflexes at the spinal level, possibly by decreasing excitatory neurotransmitter release from afferent terminals. Baclofen also acts at supraspinal sites that may contribute to its clinical effect.

Baclofen indicated for treatment of spasticity resulting from MS particularly for the relief of flexor spasms and concomitant pain, clonus, and muscular rigidity, spinal cord injuries and other spinal cord diseases and off label used for Hiccups, Musculoskeletal pain, alcohol use disorder.

Baclofen adverse effect includes Confusion, Dizziness, Drowsiness, Sedation, Asthenia, Nausea, Vomiting, CNS effects may impair physical or mental abilities and be additive to alcohol and other CNS depressants (eg, opioids, benzodiazepines). 7.2% of patients started on baclofen were hospitalized for encephalopathy compared to <0.1% of patients not receiving baclofen. Abrupt withdrawal of oral baclofen has been associated with Altered mental status, Exaggerated rebound spasticity, Hallucination, High fever, Hypertension , Hyperthermia, Muscle rigidity, Tachycardia, Seizure, Agitation, Confusion, Delusions, Insomnia, Paranoid ideation. While the timeline varies, baclofen withdrawal symptoms can start within a few hours after the last dose is taken. May take up to 48 hours to begin. Symptoms will usually peak at 72 hours. Treatment of baclofen withdrawal is with benzodiazepine.

Conclusion: Medication reconciliation on admission and discharge is an important step in preventing missing patient important medication. Med rec consists of Developing a list of current medications, Developing a list of medications to be prescribed, Comparing the medications on the two lists, Make clinical decisions based on the comparison, Communicate the new list to appropriate caregivers and to the patient. Also PRN medications should have clear instruction, One indication per Medication, One medication per indication.

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Fine-tuning the Delivery of Psychiatric Outpatient Consultation Services

KieuHanh Nguyen, MD, Steve Denton, LCSW

Background/Significance

The Psychiatric Outpatient Consultation model (POC) was created so primary care providers (PCPs) could continue to treat a patient's psychiatric disorder and improve their ability to treat these disorders. When a PCP needs assistance in treating a patient's psychiatric disorder, they would place a referral POC order. The referring PCP who places the consult order must be willing to accept the patient back for ongoing medication management and is not planning to refer the patient for ongoing psychiatric care.

The POC provider would complete their consult including treatment recommendations and then return the patient to the PCP for ongoing care.

Methods

Complete chart reviews of adult patients who were seen by POC and referred back to their PCP with recommendations. Examine the number of referrals to POC and the number of referrals to Psychiatry/Centralized Intake that were made. Data will be collected from September-November 2022 and will be compared with the data that was collected from September-November 2021. Examine the POC recommendations and how many of those were completed by the PCPs. Examine data of the POC primary diagnosis to see if there is a relationship between the diagnosis and whether the patient was referred on to Psychiatry/Centralized Intake in the old model versus the new model. Survey primary care and POC provider feedback of the model after the switch to a one-time consult using REDCap

Intervention

The Department of Psychiatry started having ongoing discussions with physician leadership on ways to adhere to the goal of POC more fully. The outcome of these discussions was that the POC model would become exclusively a one-time consult with recommendations and the patient would follow-up with their PCP to discuss the treatment recommendations and decide how best to proceed with their psychiatric care. The POC provider would no longer have the option of prescribing a medication, offering a consult follow-up, or referring the patient to Centralized Intake for ongoing psychiatric care. Instead, the POC provider's recommendations would include medication recommendations as well as any referral recommendations.

Outcomes

After the transition to the new model:

- Fewer referrals to CI for MM were placed (31% in Oct 2021 → 20% in Oct 2022)
- More patients followed up with their PCP than POC provider (27% in Oct 2021 → 3% in Oct 2022)
- Both POC and primary care providers have an overall positive opinion of the POC model

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Discussion/Implications

- Continue to offer medication management via POC referral when there is not enough MM availability but adequate POC availability

- Expand POCs to certain specialties like OBGYN and geriatric medicine (specialty providers who provide ongoing prescribing of psychotropic medications)

- Continue to offer in real-time POCs to Street Medicine – to date we have done 11 of these real-time POCs since starting to offer this service to Street Medicine in January 2023

- Consider offering real-time POCs to primary care

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The Role of Broad Pharmacogenomic Testing in Anxiety Management: a Brief Systematic Review

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Background

Anxiety is among the most common psychiatric symptoms, yet management of anxiety can pose a significant challenge for psychiatrists, with potential difficulties including lack of efficacy or treatment resistance, difficulty in assessing 'adequate trial' of interventions, side effects of medications, polypharmacy, and presence of ongoing exogenous contributors to anxiety [1]. Pharmacogenomic (PGx) testing presents an opportunity to augment clinical decision-making with data that can assist treatment by avoiding adverse drug interactions, reducing polypharmacy, and improving likelihood of positive response [2]. PGx testing has demonstrated potential utility in the management of major depressive disorder, with recent meta analysis of 11 clinical trials suggesting that PGx guided treatment had potential benefits in terms of both more rapid response and remission [3], however, trials both including patients with symptoms of anxiety and studies assessing the impact of PGx testing on anxiety symptoms are more limited. The goal of this project is to assess systematically review studies which provide data on the impact of PGx testing on anxiety symptoms.

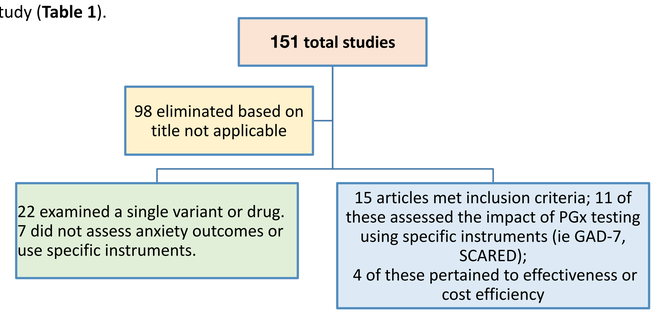
Methods

We performed a systematic literature review of articles in PubMed. Articles were included in the present analysis if they presented results from clinical trials, observational studies, randomized control trials, cohort studies, chart reviews, or prospective studies. Articles were included which assessed the impact of broad PGx testing and either assessed anxiety outcomes using specific instruments or assessed effectiveness or cost efficiency of anxiety management. Of note, studies which evaluated the impact of single polymorphisms related to a single medication were not included.

- The following search term was used in PubMed: (pharmacogenomic* OR pharmacogenetic*) AND (anxiety OR GAD) AND (trial OR ""observational study"" OR RCT OR ""cohort study"" OR ""chart review"" OR prospective study)
- All studies available on 1/16/2024 in PubMed were evaluated

Results

15 studies met criteria: 1 systematic review, 3 prospective, randomized, pragmatic clinical trials, 4 retrospective studies, 1 subanalysis of a 1-year prospective assessment, 2 multicenter analyses, 1 naturalistic, unblinded, prospective analysis, 1 propensity-score matched study, 1 randomized single blind study (**Table 1**).



Discussion

Given significant prevalence and morbidity associated with both primary anxiety disorders and anxiety comorbid with other psychiatric disorders, there is a critical need for novel approaches for treatment and management of anxiety symptoms. The studies included in this analysis provide generally promising results for ways in which PGx testing has the potential to reduce polypharmacy, improve time to response and remission, and reduce overall healthcare costs related to anxiety diagnoses. Nevertheless, there is a severely limited number of clinical studies aimed at investigating the role of PGx testing in anxiety treatment. Further studies are needed regarding PGx-related outcomes among patients with anxiety symptoms or diagnosed with primary anxiety disorders .

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Table 1

Results

Author	Title	Type	Population	Findings
Dagar, A. et. al, 2022	Real-world experience of using combinatorial pharmacogenomic test in children and adolescents with depression and anxiety	Retrospective cohort study	281 patients with depression and anxiety with pre-baseline GeneSight Psychotropic test results	A significant improvement ($p < 0.001$) in Clinical Global Impression (CGI) metrics of severity, efficacy, and global improvement. As a result of CPGx testing, 43.7% of the cohort underwent addition of medication, 32.7% underwent medication replacement, and the rest remained unchanged.
Brown, Lisa et al., 2021	Pharmacogenetic Testing in an Academic Psychiatric Clinic: A Retrospective Chart Review	Retrospective Chart Review	592 patients, 52% with a primary diagnosis of depression, 12% with a primary diagnosis of anxiety who had undergone Pgx testing	There was a reduction in polypharmacy as, prior to PGx testing, 72% of patients reviewed were prescribed 3 or more medications; following PGx testing 44% of patients remained prescribed 3 or more medications ($p < 0.0001$). Incongruence in patient medications was also reduced as, prior to testing, 26% of patients were taking incongruent medications; following PGx testing 19% remained ($p = 0.006$).
Claudio-Campos, Karla et al., 2021	Acceptability, Feasibility, and Utility of Integrating Pharmacogenetic Testing into a Child Psychiatry Clinic	Prospective, randomized, pragmatic clinical trial	49 patients either on medication at baseline and considering a change (38) or open to starting a medication (11)	Poor and intermediate metabolizers for CYP2D6 had higher side effect scores after the 8th week of treatment. Poor and intermediate metabolizers for CYP2C19 had decreasing side effect scores throughout the study as compared to normal metabolizers, rapid metabolizers, and ultrarapid metabolizers. However, when comparing clinical end point between implementation and control arms no differences were reported.
Papastergiou, John et al., 2021	Pharmacogenomics guided versus standard antidepressant treatment in a community pharmacy setting: A randomized controlled trial	Randomized control trial	213 patients diagnosed with MDD or GAD	PHQ-9 total scores were reported over a 6 month period, the overall change was 5.03 and 2.42 between the assay-guided and control groups. These were improvements in baseline depression severity of 36% vs 18%, GAD-7 of 41% vs 23%, and SDS by 44% vs 18%.
Jablonski MR et al., 2020	Economic Outcomes Following Combinatorial Pharmacogenomic Testing for Elderly Psychiatric Patients	Subanalysis of a 1-year prospective assessment	Patients who were utilizing medication regimens congruent or incongruent with PGx testing	Pharmacy claims compared per member per year costs, congruent prescribing resulted in a US$3497 PMPY ($P < .001$) reduction in cost for patients greater than 65 years old and in the prescription of one less neuropsychiatric medication ($P = .070$); congruent prescribing resulted in US$2467 PMPY ($P < .001$) reduction in cost for patients less than 65 years old.
Perlis, Roy H et al., 2020	Randomized, controlled, participant- and rater-blind trial of pharmacogenomic test-guided treatment versus treatment as usual for major depressive disorder	Multicenter randomized double-blind controlled trial	304 outpatients with nonpsychotic MDD who underwent PGx testing followed over 8 weeks	There was no significant difference distinguished in Hamilton Depression Rating Scale (SIGH-D-17) between the assay-guided-treatment and treatment-as-usual arms of the study at the 8 week mark. However, analyses suggested that there was a significant decrease in individuals who had a worsening of depressive symptoms in the assay-guided-treatment arm.
Dunlop, Boadie W et al., 2019	Comparing sensitivity to change using the 6-item versus the 17-item Hamilton depression rating scale in the GUIDED randomized controlled trial	Retrospective study	1541 patients who were the intent-to-treat (ITT) cohort of the Genomics Used to Improve DEpression Decisions (GUIDED) trial	The HAM-D6 distinguished a benefit over treatment as usual in the guided-care arm at 8 weeks ($\Delta = 4.4\%$, $p = 0.023$) while the HAM-D17 did not ($\Delta = 3.2\%$, $p = 0.069$). Both the HAM-D6 ($\Delta = 7.0\%$, $p = 0.004$) and HAM-D17 ($\Delta = 6.3\%$, $p = 0.007$) found a significant increase in response rates for guided-care compared to TAU and greater remission rates (HAM-D6 $\Delta = 4.6\%$, $p = 0.031$; HAM-D17 $\Delta = 5.5\%$, $p = 0.005$). Additionally, HAM-D6 found further increases in benefit over TAU at week 8 for symptom improvement, response, and remission for patients in the guided-care arm who were already utilizing incongruent medications (symptom improvement $\Delta = 7.3\%$, $p = 0.004$, response $\Delta = 10.0\%$, $p = 0.001$, remission $\Delta = 7.9\%$, $p = 0.005$).
Shan, Xiaoxiao et al., 2019	Preliminary Clinical Investigation of Combinatorial Pharmacogenomic Testing for the Optimized Treatment of Depression: A Randomized Single-Blind Study	Randomized single blind study	80 patients with MDD	HAMD-17 testing at baseline, 2, 4, and 8 weeks time points of treatment resulted in no significant difference between assay-guided and treatment-as-usual groups in HAMD-17 scores. Additionally, incidence of adverse reaction was 55.56% in the assay-guided group and 57.89% in treatment-as-usual group.
Bradley, Paul et al., 2018	Improved efficacy with targeted pharmacogenetic-guided treatment of patients with depression and anxiety: A randomized clinical trial demonstrating clinical utility	Prospective, randomized, double-blind clinical trial	685 patients with baseline depression or anxiety scores determined by HAM-D17 or HAM-A, respectively	Patients diagnosed with depression response ($p = 0.001$) and remission rates ($p = 0.02$) who underwent NeuroIDgenetix PGx testing were significantly higher than the treatment as usual group at the 12 week assessment using HAM-D17 scoring. Patients diagnosed with anxiety response rates ($p = 0.04$) and HAM-A scores improved at the 8 and 12 week assessments ($p = 0.02$ and 0.02, respectively)
Perlis, Roy H et al., 2018	Pharmacogenetic testing among patients with mood and anxiety disorders is associated with decreased utilization and cost: A propensity-score matched study	Propensity-score matched study	817 patients with a mood or anxiety disorder diagnosis who underwent PGx testing matched to 2745 patients who did not undergo PGx testing	PGx tested patients had 40% fewer all-cause ED visits and 58% fewer inpatient all-cause hospitalizations ($p < 0.0001$ and $p < 0.0001$ respectively). There was no significant difference between the groups in the number of prescribed psychotropic medications or hospitalizations related to mood-based complaints. The tested group was estimated to have $1,948 lower overall 6-month costs as compared to the control group.
Health Quality Ontario: Stacey Brener, Corinne Holubowich, 2017	Pharmacogenomic Testing for Psychotropic Medication Selection: A Systematic Review of the Assurex GeneSight Psychotropic Test	Systematic Review	4 studies examining Assurex GeneSight Psychotropic utility in guiding psychotropic medication prescription	Medication selection guided by the GeneSight Psychotropic test improved responses to depression therapy and represented an increase in prevention of suicide, decrease in depression score, and decrease in lower quality of life score in comparison to patients receiving treatment as usual when measured utilizing the HAMD-17, PHQ-9, or QIDS-C16. No significant difference was found in rates of complete depression remission.
Espadaler, Jordi et al., 2017	Pharmacogenetic testing for the guidance of psychiatric treatment: a multicenter retrospective analysis	Multicenter retrospective analysis	182 patients diagnosed with depression, psychosis, anxiety, or bipolar disorder who received Neuropharmagen PGx testing	Patients who received treatment in congruence with assay results had a 4-fold improvement over control groups who did not receive treatment in congruence with assay results ($p = 0.011$) as measured by CG!-S scores.
Altar, C Anthony et al., 2015	Clinical Utility of Combinatorial Pharmacogenomics-Guided Antidepressant Therapy: Evidence from Three Clinical Studies	Review	258 patients with treatment-resistant depression tested with the GeneSight PGx test during 3 8-10 week 2-arm, prospective clinical trials	Clinical response odds underwent a 2.3-fold increase among all assay-guided subjects as compared to treatment-as-usual subjects ($p = 0.004$). Additionally, the assay guided group had a 53% greater improvement in symptoms ($p = 0.0002$) and a 1.7-fold improvement in response ($p = 0.01$) as compared to the treatment-as-usual group.
Brennan, Francis X et al., 2015	A Naturalistic Study of the Effectiveness of Pharmacogenetic Testing to Guide Treatment in Psychiatric Patients With Mood and Anxiety Disorders	Naturalistic, unblinded, prospective analysis	685 patients who took the Genecept Assay and completed questionnaires at baseline, 1 month, and 3 months	87% of patients experienced clinically measurable improvement and 62% experienced clinically significant improvement as reported by the Clinical Global Impressions-Improvement scale. Patients also reported significant decreases in anxiety ($p < 0.001$), depression ($p < 0.001$), and medication side effects ($p < 0.001$) as well as significant increases in quality of life ($p < 0.001$).
Winner, J et al., 2013	Psychiatric pharmacogenomics predicts health resource utilization of outpatients with anxiety and depression	1 year blinded and retrospective study	96 patients diagnosed with depression or anxiety and on at least 1 common antidepressant/antipsychotic medication	Patients on a medication regimen including a "red bin" drug, as compared to patients with "green bin" or "yellow bin" drugs as determined by the GeneSight Psychotropic test, had 3x more medical absence days, 4x more disability claims, 69% more total healthcare visits, and 67% more general medical visits.