CNS Spectrums (2015), **20**, 311–318.
doi:10.1017/S1092852915000127

CASE-BASED REVIEW ARTICLE

Illustrative cases to support the Cal-VAT guidelines

Laura J. Dardashti,[1] Jennifer A. O'Day,[1,2] Michael W. Barsom,[2] Eric H. Schwartz,[1,3] and George J. Proctor[1,4]*

[1] California Department of State Hospitals (DSH), Sacramento, California, USA
[2] Department of State Hospitals (DSH)-Metropolitan, Norwalk, California
[3] Department of State Hospitals (DSH)-Vacaville, Vacaville, California
[4] Department of State Hospitals (DSH)-Patton, Patton, California

There is increasing interest in developing more nuanced methods for managing aggression and violence in long-term psychiatric inpatient settings. However, the dearth of controlled studies has, at times, hampered presentation of viable options. Following the publication of guidelines developed in the California State Hospital forensic system, the authors present a group of 7 cases illustrating different approaches to violence management, including pharmacological, psychotherapeutic, and environmental interventions.

Received 14 October 2014; Accepted 7 February 2015; First published online 30 March 2015

Key words: Forensic, in-patient, psychiatry, state hospital, treatment, violence.

Introduction

Forensic hospital systems contain a significant number of patients who engage in acts of violence. Persistent aggressive behavior may be due to insufficient treatment of the various origins of such violence, which can include, but are not limited to, psychotic aggression, impulsive aggression due to mood disorders, schizophrenia, personality disorders, trauma or ADHD, and predatory aggression due to personality disorders.[1] While psychotic violence is the least difficult to treat, it is also the least frequently occurring form of violence, with impulsive being both the most common and most difficult to treat.[2,3] A complicating factor in the treatment of the violent patient is that many acts of aggression may be multifactorial–that is, patients may be driven to act by more than 1 of the 3 characterized forms of violence. Conventional use of psychotropic medications is often insufficient in adequately controlling violence,[4] or there is hesitation on the part of treating psychiatrists to use recommended treatments such as clozapine for those that are refractory.[5] This hesitation may be due to concerns about patient compliance with blood draws, lack of familiarity in use of the medication, discomfort with managing its potential side effects, and/or fear that the medication will be discontinued if the patient is transferred back to a correctional facility. Furthermore, forensic hospital settings are limited, in some cases, in providing the appropriate environmental milieu that may serve to mitigate violent acts.

The following is a series of 7 cases that illustrate the various psychopharmacological, therapeutic, and environmental interventions discussed in the California State Hospital Violence Assessment and Treatment (Cal-VAT) guidelines[6] and employed to treat each patient's violence. All individuals were or are inpatients in smoke-free facilities with limited access to caffeinated beverages. These cases represent some of the most difficult-to-treat patients within the state hospital setting, but also provide hope for the provider in that, with aggressive and appropriate treatment, violence can be significantly reduced if not completely eliminated.

Case 1: Psychotic Violence Requiring High-Dose Antipsychotic Therapy

Description

The patient is a 44-year-old, African American woman who was admitted to a forensic psychiatric hospital as incompetent to stand trial for alleged arson of an inhabited structure, battery, and exhibiting a deadly weapon. Upon admission, she was found to be

*Address for correspondence: Laura J. Dardashti, California Department of State Hospitals, 1600 9th Street, Room 400, Sacramento, CA 95814, USA.
(Email: laura.dardashti@dsh.ca.gov)

argumentative and paranoid. Her risk for violence was elevated due to her irritability, sensitivity to provocation, and being easily angered when requests were denied. She also experienced auditory hallucinations of her name being whispered and visual hallucinations of snakes. She was an unreliable historian, and no records were available for review. Admission laboratory analyses were unremarkable, except for being hepatitis C positive. Her urine admission drug screen was negative, and she refused to have an electrocardiogram.

Despite several weeks of adherence to olanzapine 20 mg (increased to 40 mg) and mirtazapine 30 mg, she remained irritable, paranoid, and violent. She engaged in repeated verbal threats and occasional episodes of physical aggression, resulting in 5-point restraints on one occasion, wrist-to-waist restraints on 2 occasions, and a period of one-to-one nursing observation. Mirtazapine was discontinued as it was deemed unnecessary and was possibly promoting irritability via enhancing norepinephrine release. It was difficult to determine whether the removal of mirtazapine had an appreciable effect on her irritability, since she had an increase in olanzapine to 50 mg at the same time. After steady state was established on a daily dose of 50 mg, her AM trough olanzapine plasma concentration was measured at 78 ng/mL. Olanzapine was then increased to 60 mg to achieve an increased olanzapine plasma concentration with an ultimate target plasma concentration greater than 100 ng/mL, if clinical response at lower concentrations was inadequate. After 11 days, she was no longer paranoid and reported that her auditory and visual hallucinations were gone; however no olanzapine level was obtained at the 60 mg dose. Clonazepam 1.5 mg and quetiapine 50 mg were added after several days on the increased olanzapine dose to assist with residual irritability and initial insomnia, respectively. Her cognitive ability to learn court-related material improved, although she would occasionally become loud and intrusive. Divalproex sodium, extended release, was initiated with the dose titrated to target her irritable and intrusive episodes. An AM trough valproic acid serum concentration of 72 mcg/mL was achieved while on a daily dose of 1500 mg, and she became calmer within 17 days of starting the medication. She was discharged and returned to court 3 months after admission. The prescribed medication regimen at discharge included olanzapine 50 mg daily, divalproex 1500 mg daily, clonazepam 1.5 mg daily, and quetiapine 50 mg each evening.

Commentary

A high dose of olanzapine helped to control this patient's psychosis and reduced the majority of her violence. The addition of divalproex was effective in alleviating her residual irritability and intrusiveness. Since some patients have shown tolerability and efficacy with higher-than-typical antipsychotic blood levels, correlating with D_2 receptor occupancy in the upper ranges of tolerability (80% and greater), it is possible that reaching the targeted olanzapine plasma concentration of 100 ng/mL would have avoided the need for additional medication.[7] In addition, the use of valproic acid or divalproex should target a plasma concentration of 80–120 mcg/mL to allow sufficient non-protein-bound valproic acid to have its optimal CNS effect.[8]

An alternative explanation to the patient's responsiveness to divalproex and benefit from stopping mirtazapine, is that the patient suffered from a bipolar spectrum disorder. If a therapeutic trial of medication directed at signs and symptoms of a diagnosis lacks efficacy, revisiting the diagnostic formulation should be considered, in addition to efforts to augment the initial medication trial. Nevertheless, the patient's presentation and antipsychotic response to high-dose olanzapine appeared most consistent with her psychotic violence being driven by a schizophrenia spectrum disorder.

Case 2: Treatment-Resistant Psychotic Violence Responding to Clozapine

Description

The patient is a 48-year-old, Hispanic male with a longstanding history of schizophrenia who was admitted to a forensic psychiatric hospital as not guilty by reason of insanity for assaulting his board and care roommate due to his delusions. Prior to hospital admission, he had been taking fluphenazine decanoate 50 mg intramuscularly (IM) every 2 weeks, fluoxetine 20 mg daily, quetiapine 200 mg twice daily, and benztropine 1 mg twice daily. He had previously had trials of olanzapine, ziprasidone, quetiapine, divalproex, and lithium. His medical conditions included hepatitis C and an extensive history of substance abuse, including alcohol, cannabis, cocaine, inhalants, opiates, and methamphetamine.

Upon admission, he was unkempt, paranoid, and reported having command auditory hallucinations. Laboratory analysis was done at admission, and the following abnormalities were noted: platelets 103×10^3/uL (low); uric acid 7.5 mg/dL (high); ALT 49 u/L (high); AST 52 u/L (high); amylase 320 u/L (high); and hepatitis C RNA quantitative PCR 6.2 log IU (high). His lipase level was within normal limits, and amylase isoenzyme analysis revealed normal pancreatic amylase isoenzymes with elevated salivary isoenzymes. He was prescribed quetiapine 500 mg daily, fluphenazine decanoate 50 mg IM every 2 weeks, lithium carbonate 600 mg each evening, and temazepam 30 mg each evening. Quetiapine was increased to 800 mg daily after 14 days due to frequent episodes of psychomotor agitation in response

https://doi.org/10.1017/S1092852915000127 Published online by Cambridge University Press

to psychotic stimuli. Later, olanzapine 20 mg was added due to ongoing psychosis and agitation. His liver transaminase enzymes normalized, as did his amylase, within 30 days of admission. Despite continued low platelets, a trial of divalproex sodium (extended release) was initiated to augment the antipsychotic medication; however, tremor and transaminase elevations led to its discontinuation after one week. Lithium was stopped due to tremor, as well.

His episodic agitation and violence due to unremitting psychosis remained problematic. The daily dose of olanzapine was increased to 60 mg, 47 days after admission, and quetiapine was decreased to 200 mg daily. He remained intrusive (would stand over patients' beds at night and stand close to them during the day), would frequently curse loudly to himself and at staff without provocation, and would occasionally strike peers and staff. He had steady state plasma concentrations of fluphenazine 0.6 ng/mL and olanzapine >200 ng/mL with extrapyramidal side effects in the form of parkinsonism without akasthisia or dystonia.

Due to his treatment-resistant psychosis, his treating psychiatrist initiated a clozapine trial, as olanzapine and quetiapine were tapered and discontinued. Clozapine was titrated to a dose of 300 mg daily, resulting in a trough clozapine plasma concentration of 799 ng/mL with mild sialorrhea. The patient's psychosis persisted. However, his cursing decreased, and he was no longer threatening and hitting others. After 8 weeks on the same dose of clozapine, his auditory hallucinations and visual hallucinations were substantially decreased. His clozapine plasma concentrations ranged from 688–850 ng/mL on the same dose, and the medication was well tolerated with episodes of violence remaining absent for over a year to date.

Commentary

This patient had a notably low fluphenazine plasma concentration (0.6 ng/mL) when measured at the hospital. When fluoxetine was discontinued upon admission, the fluphenazine metabolism was no longer inhibited via fluoxetine's influence on CYP2D6, leading to a decline in the fluphenazine plasma concentration of roughly 50%. Checking for this pharmacokinetic drug–drug interaction and measuring a baseline fluphenazine plasma concentration upon admission would have allowed maintenance of fluphenazine plasma concentrations within the therapeutic range. Nevertheless, this patient's psychosis persisted during antipsychotic trials both in the hospital and prior facility, leading to a clozapine trial. Clozapine has a superior response rate compared to other antipsychotics for treatment-resistant schizophrenia and shows efficacy in decreasing aggressive behavior independent of its antipsychotic properties.[9-11]

Case 3: Impulsive Violence Requiring Control of Psychosis, Attention, and Psychosocial Skills

Description

The patient is a 51-year-old, African American male who was admitted to a psychiatric forensic hospital after he was found not guilty by reason of insanity for attempted rape. After admission to the hospital, he was continued on oral haloperidol 10 mg twice daily and valproic acid 2000 mg each evening. Admission laboratory tests revealed normal chemistries and a negative urine drug screen. The electrocardiogram on admission showed nonspecific T wave abnormalities with a ventricular rate of 79 bpm and QT/QTc of 389/396 msec.

The patient had a history of ADHD with impulsiveness and aggression beginning in adolescence. His level of aggression in his youth led to criminal charges and institutionalization beginning at 14 years of age. Later in adolescence, he developed a psychotic illness with persecutory delusions that progressed into a schizophrenia-spectrum disorder. His clinical picture was complicated by the presence of borderline intellectual functioning. Previous medication trials included chlorpromazine, fluphenazine, loxapine, risperidone, paliperidone, paliperidone palmitate, olanzapine, quetiapine, thiothixene, fluoxetine, paroxetine, mirtazapine, lithium carbonate, valproic acid, lamotrigine, gabapentin, tiagabine, clonidine, and buspirone.

His history of treatment with a variety of antipsychotics and mood stabilizers in both monotherapy and polypharmacy resulted in a partial response at best, with his psychosis showing only a modest improvement in response to medication. However, his aggression and impulsivity persisted. Medications used in the course of his current hospitalization included olanzapine, fluphenazine decanoate, and lithium carbonate. Consistent with his prior history, his psychosis improved, but the agitation and impulsive aggression continued.

Once his psychosis was under moderate control, he was assigned a nursing staff member (Behavioral Change Agent, BCA) who would spend one shift daily working with the patient to assist him with the use of coping strategies other than aggression. The BCA would interface with other team members to provide greater consistency in the behavioral approach to the patient. The assigned nursing staff member (BCA) assisted the patient and his team in recognizing his triggers to violence that led to a modest reduction in threats, though his PRN medication use increased. Despite the use of the BCA, the patient continued to engage in violence against his treatment team. The addition of methylphenidate extended release (Concerta ER) appeared to improve his concentration and attention, and his BCA observed that the patient had an improved ability to implement use of his coping strategies. At that point, his medication

https://doi.org/10.1017/S1092852915000127 Published online by Cambridge University Press

regimen included olanzapine 50 mg each evening, divalproex (extended release) 2500 mg each evening (switched from lithium due to lithium-related tremors), fluphenazine decanoate 75 mg every 14 days, and methylphenidate extended release 54 mg daily.

He was enrolled in a multifaceted neurocognitive and social cognition training program for patients with psychiatric disorders and severe cognitive needs and challenges. The program was specifically designed to target aggression to self and others. His medication regimen remained stable, and he continued to have the services of the BCA while also attending the new aggression-reduction program. His use of PRN medications decreased from 78 in the 21 months prior to starting the program to a total of 8 in the 36 months while enrolled. His episodes of seclusion/restraint dropped to zero from a baseline of 2 occurrences per year. His aggressive acts showed a reduction from his average of 4.5 serious episodes per year to only 1 incident in the current year.

Commentary

Violence that persists after controlling the psychosis is predatory or impulsive. Since this patient's violence was impulsive, enhancing attention with a stimulant seemed to, indeed, improve attention, but this addition was not sufficient alone. Structured psychosocial and cognitive skills programs were required to obtain the most substantial reductions in violence.[12-14]

Case 4: Predatory Violence Exceeding Security Capacity of Hospital Setting

Description

The patient is a 45-year-old, African American male who was admitted to a forensic psychiatric hospital when he was 23-years-old after being found not guilty by reason of insanity for entering a home he believed he owned and threatening the homeowner with a knife.

Upon admission, the patient was disheveled, guarded, and reported persecutory delusions, ideas of reference, and thought broadcasting. He had several healed fractures from prior fights but no other medical conditions. Admission laboratory tests were unremarkable, showing values within normal limits.

His history of mental illness began at 16-years-old with his experience of auditory hallucinations. Characteristic signs and symptoms of his illness consisted of auditory hallucinations, persecutory delusions, grandiose delusions, disorganized thinking, disorganized behavior, social isolation, assaults, and sexually inappropriate behaviors. His course of illness had been complicated by substance abuse, including early adolescent use of alcohol, cannabis, and inhalants. Later in adolescence, he began abusing methamphetamine, psilocybin, and cocaine.

His psychosis improved early in the course of hospitalization. He was treated with haloperidol 10 mg twice daily (later, converted to haloperidol decanoate 200 mg IM every 28 days due to his refusal to take oral haloperidol), valproic acid 1500 mg twice daily (targeting his affective fluctuations, often in response to internal stimuli), clonazepam 1 mg twice daily (targeting his irritability), and trazodone 400 mg each evening (for insomnia). His auditory hallucinations disappeared, and he had significant improvement in the level of organization of his speech and behavior. He continued to experience some persecutory delusions with occasional ideas of reference that other people were talking about him when he passed them.

Despite the improvement in his psychosis, he made frequent threats toward staff and peers when his desires were not met. He was involved in several physical altercations with peers and assaulted a staff member early in his hospitalization. He also engaged in rules violations, such as gambling, smoking on the unit, collecting contraband items, and making sexually inappropriate remarks and gestures, such as masturbating in front of staff, touching female staff on the breasts and buttocks, and soliciting sexual favors from them. His level of violence increased during his hospitalization, such that he assaulted a peer with an object, striking him repeatedly in the head and face. Ten days later, he went on to attack several staff members, injuring 2 of them severely. He was convicted of assault and sent to serve a term in prison.

Upon his return to the forensic inpatient setting, he resumed many of the same behaviors, including rules violations, threats, and assaults. His psychotic symptoms remained well controlled; however, his disruptive behaviors and violence increased after the psychosis improved. The frequency and severity of his violence increased to the point that he required unit transfers approximately every 3 months. Several attempts were made to guide him toward more pro-social conduct, including skills building, anger management group participation, and the development of individualized behavior plans on various units. He was referred to the behavior specialist team that assisted in the development and implementation of his behavior plans. He showed an initial decrease in physically aggressive episodes per month (from 8 to 5, at one point). However, such improvements were short-lived.

Due to his persistent violence in the hospital setting, he was assessed by a forensic examiner for referral to a prison setting. The examiner noted that the patient had 33 incidents of threats, sexually inappropriate behavior, and violence over the 1 month period prior to his

https://doi.org/10.1017/S1092852915000127 Published online by Cambridge University Press

forensic evaluation. As a result, he was transferred to a prison setting, where he has been less violent and disruptive according to prison records.

Commentary

Controlling this patient's psychosis resulted in an increase of aggression and violence. The pattern of rules violations and lack of effort to engage in pro-social behaviors in the absence of psychosis pointed to predatory violence. After failing on multiple treatment units within the hospital, his behaviors were determined to exceed the security capacity of the hospital, necessitating a more secure setting to minimize the impact of his violence on those in his environment.[15]

Case 5: Impulsive, Severe, Self-Injurious Behavior Responsive to Dialectical Behavioral and High-Dose Depot Neuroleptic Treatment

Description

The patient is a 49-year-old, Caucasian female who was admitted on a civil commitment to a forensic psychiatric hospital after recurrent community hospitalizations for self-injury and suicide attempts. Her diagnoses included recurrent major depressive disorder and borderline personality disorder. She also had a significant history of violence resulting in prior felony convictions for criminal threats and assault and battery on hospital staff and emergency personnel while in the community. Due to her severe self-injurious and violent behavior, she required continuous 2:1 observation during a several-year-long stay at a previous state psychiatric hospital. In addition to her complicated and lengthy psychiatric history, she had multiple medical problems, including morbid obesity, metabolic syndrome, and large, self-inflicted wounds of the abdominal wall, inguinal area, and popliteal fossa.

Prior to her current hospitalization, she had had trials of atypical and typical antipsychotics, as well as mood stabilizers, anxiolytics, and antidepressants, all with reportedly little change in her impulsivity, suicidality, and aggression. On admission, she was prescribed chlorpromazine 50 mg twice a day, clonazepam 2 mg daily, and fluoxetine 60 mg daily along with lorazepam 2 mg PO or IM every 6 hours as needed for agitation or anxiety. Medications were adjusted over the next year to address ongoing aggressive and violent behaviors. Chlorpromazine was increased to 300 mg 4 times a day. Fluoxetine was increased to 80 mg daily, clonazepam was tapered off, and lamotrigine was added at doses up to 200 mg twice daily without noted side effects. Prior to that, she was given a brief trial of olanzapine 10 mg at bedtime.

Despite medication adjustments, she continued to have frequent periods of agitation and aggression toward others and herself. Her self-injurious behaviors included digging into already open wounds in her abdomen and inguinal areas. She would physically assault staff who attempted to stop her during her process of further enlarging her wounds as well as threaten to lacerate her femoral artery, which was easily accessible at that point. She continued to require continuous 2:1 observation and frequent PRN medications to treat her agitation and aggression as well as regular use of restraints to curb her dangerous behaviors.

The patient was transferred to a dialectical behavioral therapy (DBT) unit. Chlorpromazine and lamotrigine were tapered off, and fluphenazine decanoate was initiated and titrated up to 100 mg every 2 weeks to target her impulsive aggression. A long-acting injectable was chosen due to her history of medication non-adherence. Fluoxetine was discontinued in exchange for mirtazapine 30 mg nightly due to continued sleep complaints. Continuous use of wrist-to-waist restraints was implemented to decrease her compulsive self-injurious behaviors. Her observation level was able to be tapered down from a 2:1 to 1:1, and she was able to remain safe during periods off 1:1 observation and while out of wrist-to-waist restraints. Though remaining hospitalized, her high-risk behaviors were drastically reduced, including aggressive behaviors toward herself and others, and her wounds were able to begin to heal. She had a decreased need for restraints and PRN medication administration.

Commentary

The use of mirtazapine as an antidepressant was chosen for its 5HT2A antagonism. That antagonism serves to mitigate the risk of EPS/akathisia,[16] which allowed fluphenazine to be more tolerable, given the patient's need for high therapeutic doses of neuroleptic agents to target her extreme impulsive aggression, which had been previously nonresponsive to alternative antipsychotic agents. Furthermore, adjunctive treatment with inpatient dialectical behavioral therapy and use of chronic wrist-to-waist restraints were critical and necessary in decreasing her impulsive aggressive behaviors.

Case 6: Impulsive and Predatory Violence Responding to Clozapine and Lithium

Description

The patient is a 21-year-old, Hispanic female who was re-hospitalized on a civil commitment to a forensic psychiatric hospital following a year-long incarceration for an organized assault on another patient during her

https://doi.org/10.1017/S1092852915000127 Published online by Cambridge University Press

previous hospitalization. The patient had a history of posttraumatic stress disorder, major depressive disorder, borderline personality disorder, and antisocial personality disorder, with at least 23 acute psychiatric hospitalizations beginning in her early teens and for depressive symptoms and self-injurious behavior. She had a known history of intense, unstable interpersonal relationships, identity disturbance, impulsivity, chronic feelings of emptiness, and difficulty controlling her anger. She would engage in para-suicidal and suicidal behaviors, such as cutting and tying ligatures around her neck, in response to her perceived abandonment by family members. She reported psychotic symptoms in the form of auditory hallucinations. Additionally she complained of nightmares and flashbacks of her childhood sexual abuse by caretakers while in the foster care system where she had been placed at a young age. Her physical medical history was significant for asthma.

Upon readmission, her medication regimen included citalopram 20 mg daily, valproic acid 500 mg twice daily, and quetiapine that was increased from 350 mg daily to 800 mg daily. However, her aggression toward herself and others persisted. Quetiapine was cross-titrated with olanzapine, but she continued to show episodes of aggression to self and unprovoked violence toward patients and staff, which also appeared predatory with evidence of planning and organization. In some of her violent incidents, she changed into more comfortable clothes prior to attacking, while other incidents of violence appeared impulsive, often reactive to her own feelings of agitation or her misinterpretation of interpersonal interactions. Her complaints of depressive symptoms, including thoughts of suicide and para-suicidal/suicidal gestures, continued and occasionally necessitated 1:1 observation. Additionally, she had insomnia and irritability with continued complaints of auditory hallucinations.

Due to her persistent violent behaviors, it was determined that she should be treated in a more secure setting to minimize the impact of her violence on those in her environment. She was transferred to a penal code unit within the hospital with the goal of the new environment shaping her behavior. The main difference between the civil and penal code units is the presence of higher functioning forensic patients who are less easily victimized, rather than any structural or security differences.

Upon transfer to the forensic setting, her medication regimen was changed. Olanzapine was discontinued, and treatment with quetiapine 600 mg (crushed) twice a day was resumed. Citalopram was continued, and valproic acid was discontinued due to her complaints of side effects and questionable efficacy. Treatment with prazosin for her nightmares was initiated; the dose was titrated up to 4 mg at bedtime, and the medication proved effective. After a 60-day period without aggression, she was transferred back to her prior unit in a nonforensic setting.

Upon transfer, her aggressive behavior resumed, necessitating the frequent use of restraints and seclusion, and leading to the addition of clozapine that was titrated up to 450 mg daily (AM trough level of 805 ng/mL at steady state) with concomitant taper and discontinuation of quetiapine. Lithium was also added to her medication regimen with the dose titrated up to 1200 mg daily (level of 0.3 mEq/L). In addition to these medications, the patient continued to be prescribed prazosin and citalopram. She was also started on levothyroxine 75 mcg daily for hypothyroidism and metformin 500 mg twice daily for pre-diabetes.

During the 5 months of gradual dose increases of clozapine and lithium, her acts of aggression diminished and her depressive symptoms improved. Prior to clozapine, she had 25 aggressive acts to others (14 toward peers and 11 toward staff) and 30 aggressive act to self (29 aggressive acts to self and 1 suicide attempt) over a 7-month period. After treatment with clozapine was initiated, she had 3 aggressive acts to others (2 toward peers and 1 toward staff) and 4 aggressive acts to self and no suicide attempts) over the remaining 9 months of her hospitalization. Two months after clozapine initiation, she began to actively participate in her work assignment 3 times a week without any problems. Three months after clozapine initiation, she demonstrated enough stability and improvement in her symptoms to be eligible to go on day passes and even home visits with her family without any behavior problems and began attending dialectical behavioral therapy (DBT) groups regularly. Her improvement resulted in her discharge from the hospital to a less secure setting with discharge medications of clozapine 450 mg daily, lithium 1200 mg daily, prazosin 4 mg at bedtime, and citalopram 40 mg daily.

Commentary

This patient showed decreased violence and improved behavior in response to placement among a higher functioning patient population, but this improvement was short-lived. While she had micro-psychotic symptoms characteristic of borderline personality disorder, her violence was consistent with having both predatory and impulsive elements. In response to the addition of clozapine at therapeutic levels and lithium at antidepressant augmentation levels, the patient had a marked decrease in her agitation and violence. Not only has clozapine been found to reduce aggression in patients with schizophrenia, but it has also been found to reduce violence in those with psychopathy.[17] Her reduction in self-harm/suicide attempts can be related to the beneficial effects of both clozapine and lithium.[18,19]

https://doi.org/10.1017/S1092852915000127 Published online by Cambridge University Press

Case 7: Treatment-Resistant Psychotic Violence Responding to Clozapine

Description

The patient is a 31-year-old, Caucasian male who was committed to a forensic psychiatric hospital with diagnoses of schizophrenia and antisocial personality disorder. The patient had a significant history of violence toward others, including assault with a deadly weapon and battery.

Initially upon hospitalization, he was noted to have prominent psychotic symptoms, including disorganized thought processes and behaviors and aggression attributed to persecutory delusions. The patient was treated with doses of haloperidol and olanzapine, which resulted in high plasma levels of these medications and a resultant significant reduction in psychotic symptoms over a period of 12 months. However, he continued to have episodes of impulsive aggression. He was unpredictable and easily angered, often rapidly escalating from calm to threatening with prominent psychomotor agitation. He was also verbally abusive and difficult to redirect with ongoing staff concerns over his behavior escalating into significant violence. This impulsive aggression precluded him from participating in group therapy sessions because of the risk of violence. However, these group therapy sessions were necessary for him to transition to an outpatient setting. For 9 months his medication regimen remained unchanged and included olanzapine 65 mg daily (olanzapine blood levels ranged from 119–161 ng/mL), haloperidol 40 mg daily (haloperidol blood levels ranged from 24–33 ng/mL), and mirtazapine 30 mg daily. He tolerated the antipsychotics without any extrapyramidal symptoms (EPS), and pertinent laboratory tests remained normal with no signs or symptoms of metabolic syndrome. He also had a 7-month trial of valproic acid at adequate serum values without impact on his impulsive aggression.

After 24 months of inpatient hospitalization, clozapine was started in an attempt to reduce his impulsive aggression. Over a period of 24 days, the dose of clozapine was titrated to 250 mg daily with a final clozapine plasma level of 188 ng/mL and norclozapine level of 109 ng/mL. Concurrently, olanzapine was cross-tapered to 25 mg daily with a plan to ultimately discontinue it. Haloperidol was continued at 40 mg daily.

Throughout the clozapine titration, the treatment team noticed a significant change in his demeanor, as his volatility and unprovoked aggressive outbursts were eliminated. He was calm and respectful toward others without any threatening behaviors and with complete remission of his impulsive aggression. Six weeks after starting the clozapine titration and after a total of 25.5 months of inpatient hospitalization, he was successfully discharged to a forensic psychiatric outpatient setting on oral daily doses of clozapine 250 mg with a clozapine plasma level of 188 ng/mL, haloperidol 40 mg, and olanzapine 25 mg.

Commentary

This patient tolerated high plasma-level haloperidol and olanzapine therapy with a resultant decrease in psychotic disorganization, but his ability to move to a less restrictive level of care was hindered by continuing impulsive aggression. The impulsive aggression was ultimately eliminated after the initiation of treatment with clozapine. Psychopharmacological treatment assisted the patient in becoming mentally available for additional forms of psychosocial treatment.

Discussion

These cases serve to illustrate the various modalities employed in the treatment of the 3 types of violence. The utility of prescribing clozapine in the treatment of psychotic violence as well as impulsive and predatory types is elucidated, as many cases demonstrate its positive outcome. Psychiatrists often avoid prescribing clozapine because they lack experience and knowledge of the medication or they give far more weight to the risks over benefits of its use.[5] An underappreciated benefit of clozapine is its ability to reduce violence aside from its antipsychotic and sedative properties.[10,20] Awareness of clozapine's aggression-reducing properties may help to increase its use and ultimately lead to improved quality of lives for patients and improved overall safety of forensic mental health facilities. The initiation of treatment with clozapine for patients demonstrating impulsive aggression should be considered early in the course of treatment due to the demonstrated efficacy.

In the cases of predatory violence, placement of the patient in a more secure environment is critical in reducing acts of aggression,[6] as well as in providing a more therapeutic environment for staff and other patients on the unit.

Other pharmacologic treatments employed included the use of high-dose antipsychotics, long-acting injectable antipsychotics, stimulants to enhance concentration, and mood stabilizers, particularly valproic acid and lithium. The use of these medications in conjunction with therapeutic modalities appropriate for the type of violence (ie, DBT for impulsive violence associated with borderline personality disorder) appears to be particularly effective in further reducing aggressive acts and giving the patient the best chance of reducing violence relapse.

Disclosures

The authors do not have anything to disclose.

https://doi.org/10.1017/S1092852915000127 Published online by Cambridge University Press

REFERENCES:

1. Dack C, Ross J, Papadopoulos C, Stewart D, Bowers L. A review and meta-analysis of the patient factors associated with psychiatric in-patient aggression. *Acta Psychiatr Scand*. 2013; **127**(4): 255–268.
2. Nolan KA, Czobor P, Roy BB, *et al*. Characteristics of assaultive behavior among psychiatric inpatients. *Psychiatr Serv*. 2003; **54**(7): 1012–1016.
3. Quanbeck CD, McDermott BE, Lam J, Eisenstark H, Sokolov G, Scott CL. Categorization of aggressive acts committed by chronically assaultive state hospital patients. *Psychiatr Serv*. 2007; **58**(4): 521–528.
4. Morrissette DA, Stahl SM. Treating the violent patient with psychosis or impulsivity utilizing antipsychotic polypharmacy and high-dose monotherapy. *CNS Spectr*. 2014; **19**(5): 439–448.
5. Nielsen J, Dahm M, Lublin H, Taylor D. Psychiatrists' attitude towards and knowledge of clozapine treatment. *J. Psychopharmacol*. 2010; **24**(7): 965–971.
6. Stahl SM, Morrissette DA, Cummings M, *et al*. California State Hospital Violence Assessment and Treatment (Cal-VAT) guidelines. *CNS Spectr*. 2014; **19**(5): 449–465.
7. Kelly DL, Richardson CM, Yu Y, Conley RR. Plasma concentrations of high-dose olanzapine in a double-blind crossover study. *Hum Psychopharmacol*. 2006; **21**(6): 393–398.
8. Hirschfeld RM, Allen MH, McEvoy JP, Keck PE Jr, Russell JM. Safety and tolerability of oral loading divalproex sodium in acutely manic bipolar patients. *J Clin Psychiatry*. 1999; **60**(12): 815–818.
9. Kane J, Honigfeld G, Singer J, Meltzer H. Clozapine for the treatment-resistant schizophrenic: a double-blind comparison with chlorpromazine. *Arch Gen Psychiatry*. 1988; **45**(9): 789–796.
10. Volavka J, Czobor P, Nolan K, *et al*. Overt aggression and psychotic symptoms in patients with schizophrenia treated with clozapine, olanzapine, risperidone, or haloperidol. *J Clin Psychopharmacol*. 2004; **24**(2): 225–228.
11. Frogley C, Taylor D, Dickens G, Picchioni M. A systematic review of the evidence of clozapine's anti-aggressive effects. *Int J Neuropsychopharmacol*. 2012; **15**(9): 1351–1371.
12. Shelton D, Sampl S, Kesten KL, Zhang W, Trestman RL. Treatment of impulsive aggression in correctional settings. *Behav Sci Law*. 2009; **27**(5): 787–800.
13. Heinrichs RW, Zakzanis KK. Neurocognitive deficit in schizophrenia: a quantitative review of the evidence. *Neuropsychology*. 1998; **12**(3): 426–445.
14. Keefe RS, Bilder RM, Harvey PD, *et al*. Baseline neurocognitive deficits in the CATIE schizophrenia trial. *Neuropsychopharmacology*. 2006; **31**(9): 2033–2046.
15. Kennedy HG. Therapeutic uses of security: mapping forensic mental health services by stratifying risk. *Advances in Psychiatric Treatment*. 2002; **8**(6): 433–443.
16. Hieber R, Dellenbaugh T, Nelson LA. Role of mirtazapine in the treatment of antipsychotic-induced akathisia. *Ann Pharmacother*. 2008; **42**(6): 841–846.
17. Brown D, Larkin F, Sengupta S. Clozapine: an effective treatment for seriously violent and psychopathic men with antisocial personality disorder in a UK high-security hospital. *CNS Spectr*. 2014; **19**(5): 391–402.
18. Meltzer HY, Alphs L, Green AI, *et al*. Clozapine treatment for suicidality in schizophrenia: International Suicide Prevention Trial (InterSePT). *Arch Gen Psychiatry*. 2003; **60**(1): 82–91.
19. Baldessarini R, Tondo L, Davis P, Pompili M, Goodwin FK, Hennen J. Decreased risk of suicides and attempts during long-term lithium treatment: a meta-analytic review. *Bipolar Disord*. 2006; **8**(5 Pt 2): 625–639.
20. Krakowski MI, Czobor P, Citrome L, Bark N, Cooper TB. Atypical antipsychotic agents in the treatment of violent patients with schizophrenia and schizoaffective disorder. *Arch Gen Psychiatry*. 2006; **63**(6): 622–629.