CASE REPORT
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Guanfacine as an Adjunct Treatment for Complex Post-Traumatic Stress Disorder: A Case Report

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Complex post-traumatic stress disorder (Complex PTSD) in pediatric patients is challenging to manage, particularly when conventional therapeutic approaches are insufficient. We report the case of Miss A, a 15-year-old girl with a history of severe neglect and abuse, adopted at age 5, who presented with frequent reliving of trauma memories, significant emotional dysregulation, dissociative episodes, recurrent self-harm, and aggression. Her treatment was complicated by comorbid mild-grade learning disability and suspected autism spectrum disorder. Initial management with promethazine, melatonin, and lorazepam, and later aripiprazole and fluoxetine provided limited relief. Following hospital readmission, guanfacine, an alpha-2 adrenergic agonist, was initiated. Miss A demonstrated a marked reduction in emotional dysregulation, self-harm, aggression, and suicidal thoughts, suggesting that guanfacine may offer significant benefits for managing Complex PTSD in such cases. This case underscores the difficulties in treating Complex PTSD with comorbid conditions, and highlights guanfacine as a potential adjunct therapy. However, further research is required to validate its efficacy and safety.

Keywords: Post-traumatic stress disorder; Complex post-traumatic stress disorder; Adrenergic alpha-2 receptor agonists; Guanfacine.

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INTRODUCTION

Complex post-traumatic stress disorder (Complex PTSD) often arises from chronic trauma experienced during developmental stages. Unlike post-traumatic stress disorder (PTSD), which is typically associated with a single traumatic event, Complex PTSD results from prolonged exposure to trauma, leading to a broader range of symptoms, including affect dysregulation, dissociation, and significant disturbances in self-concept and interpersonal relationships [1].

In adolescents, Complex PTSD can be particularly challenging to treat because of the ongoing developmental changes and the impact of trauma on emotional and cognitive growth [2]. Symptoms in adolescents often manifest as behavioral issues, emotional dysregulation, and difficulties in forming healthy relationships, which complicate both diagnosis and treatment [3]. Traditional PTSD treatments, such as trauma-focused cognitive behavioral therapy, are still under-investigated for Complex PTSD [4], and selective serotonin reuptake inhibitors (SSRIs) are often less effective in managing the complex and pervasive symptoms seen in adolescents with PTSD [5].

The pharmacological treatment of PTSD traditionally focuses on medications that target the serotonin and norepinephrine systems, including SSRIs and serotonin-noradrenaline reuptake inhibitors [6]. These medications help manage core symptoms such as intrusive memories and mood disturbances, but often fail to address hyperarousal and impulsivity, particularly in patients with Complex PTSD [7].

Guanfacine and clonidine are alpha-2 agonists that are primarily used in the management of hypertension [8] and attention-deficit/hyperactivity disorder (ADHD) [9,10]. However, their calming effects on the sympathetic nervous system have prompted their off-label use in PTSD, particularly for symptoms related to hyperarousal and emotional dysregulation [11]. A few case reports have suggested that guanfacine may help reduce hyperarousal symptoms and improve sleep quality in adolescents with PTSD [12-14]. Despite these potential benefits, its efficacy remains variable and requires further validation. This case report outlines the clinical journey of Miss A, a 15-year-old girl diagnosed with Complex PTSD who experienced significant improvements in emotional dysregulation and a reduction in self-harm behaviors and aggression following treatment with guanfacine.

CASE REPORT

Miss A is a 15-year-old Caucasian girl who was adopted at the age of five after being placed in foster care at 18 months of age. Before entering foster care, she lived with her biological parents who were known to abuse drugs and likely had limited intellectual abilities. During the first 18 months of her life, Miss A experienced severe neglect and abuse, although the exact circumstances were unclear.

Miss A's challenges became evident at age nine, when her adoptive parents sought help because of concerns about her anger, violent outbursts, and learning difficulties. Evaluations revealed that she was functioning below her peers, with a full-scale IQ within the mild-grade learning disability range. Her behavior was unpredictable, shifting from agreeable to abusive. Her parents also noticed signs of hyperactivity and impulsivity, which raised concerns about ADHD. Objective assessments were conducted using the QB test on two occasions [15], both of which indicated that Miss A did not meet the symptom threshold for inattention and impulsivity compared to other age groups. It was the opinion of the assessment team that her behaviors were better explained by traumatic experiences during her early years.

Additionally, concerns were raised about her poor social communication skills and mental rigidity, suggesting possible autism spectrum disorder (ASD). However, a definitive diagnosis was challenging due to missing early developmental history and attachment issues.

In recent months, Miss A's condition significantly deteriorated, leading to multiple visits to the emergency department and hospital admissions to the pediatric ward. Her main concerns included severe self-harm, suicidal ideation, and aggression towards her adoptive parents. Observations in the pediatric ward did not indicate any significant depressive symptoms. Miss A had good sleep patterns and appetite, maintained good self-care and personal hygiene, and appeared cheerful most of the time. She engaged in frequent social interactions with others, had normal energy levels, and did not exhibit any prominent sense of hopelessness or helplessness. Despite generally appearing upbeat and interacting appropriately with the ward staff, she experienced considerable emotional distress during home leave. This distress triggered suicidal thoughts and violent behavior, including attempts to strangle her parents. Upon returning to the ward, she exhibited aggressive behavior, such as physically assaulting the staff, and remained in the ward following these incidents.

During a psychiatric assessment, Miss A reported that since the age of 12, she had been hearing voices suggesting that her birth parents were coming after her. She also frequently experienced nightmares in which her birth parents tried to kill her, which caused significant distress. In a subsequent assessment, when asked about the detailed content of the voice, she chose to type the information on her phone rather than speaking about it. A few minutes into the discussion, she suddenly dissociated, attempting to strangle herself with a telephone charger line and banging her head against the wall, which required immediate intervention from the nursing staff.

Miss A met the criteria for Complex PTSD as defined by the ICD-11 [16]. She exhibited symptoms of re-experiencing trauma through intrusive memories and nightmares, avoided discussing her traumatic experiences, and showed hypervigilance and severe emotional dysregulation. Her long history of affect dysregulation with recurrent self-harm, aggression, and unstable interpersonal relationships coupled with low self-esteem further supported this diagnosis. The comorbidity of learning disabilities and suspected ASD complicated the patient's clinical presentation, making treatment particularly challenging.

Miss A's treatment initially aimed to manage her emotional dysregulation through therapy. Trauma-focused therapy was not feasible due to frequent dissociative episodes, severe self-harm, and aggression. Despite efforts to improve her emotion regulation, she continued to experience significant irritability and aggression.

Given the ongoing challenges with Miss A's emotional dysregulation and aggression, pharmacological treatment was considered to manage her sleep and irritability. She was initially prescribed Circadin (melatonin extended-release) 4 mg nightly for sleep, promethazine 25 mg every 6 hours as needed (typically administered at 100 mg daily), and lorazepam 0.5 mg as needed for acute agitation. Despite these interventions, the patient continued to exhibit violent behavior in the ward. Owing to the severity of her symptoms, particularly aggression, aripiprazole was administered at a dose of 2 mg daily. Because the patient tolerated the medication well, the dose was increased to 5 mg daily after two weeks. Following another two weeks, the dosage was further increased to 10 mg daily owing to persistent episodes of irritability and aggression.

Miss A remained in the pediatric ward for three months because social care required more time to arrange funding and secure appropriate caregiver support for her in the community. Despite being administered 10 mg of aripiprazole daily, she continued to exhibit self-harm, irritability, and aggression. At the end of this extended stay, she was discharged with 24-hour 2:1 carer support at home. However, even with medication and constant supervision, Miss A continued to display aggression and self-harm, often triggered by unexpected changes in her environment such as alterations in caregiver arrangements, which caused significant anxiety.

After returning home, Miss A experienced and reported worries about various aspects of her life, although her mood was not low. To address the prominent anxiety symptoms that contributed to her emotional dysregulation, fluoxetine 10 mg daily was introduced and increased to 20 mg after two weeks. Her community medication regimen included fluoxetine 20 mg daily, aripiprazole 10 mg daily, promethazine 10 mg twice daily as needed, and Circadin 4 mg at night. Despite these treatments, emotional dysregulation, recurrent self-harm, and aggression persisted over the following three months, which could happen up to a few times a day. Self-harm episodes were sometimes triggered by nightmares. Miss A was readmitted to the hospital after a severe episode of self-harm that involved cutting herself with a broken glass. Her parents expressed concerns regarding caring for her in the community.

Given the ongoing issues of emotional dysregulation, dissociative episodes, and aggressive behavior, along with the limited effectiveness of the current treatment regimen, aripiprazole was tapered off. Fluoxetine was increased to 30 mg daily to optimize the treatment for her anxiety. After reviewing available evidence, consulting practice guidelines, and discussing options with medical colleagues, guanfacine—an alpha-2 adrenergic receptor agonist, was considered because of its potential to alleviate sympathetic hyperarousal, irritability, and aggression. Intuniv (guanfacine extended-release) was initiated at a dose of 1 mg once daily, with an increase to 2 mg after one week. Aripiprazole was tapered off after two weeks.

Miss A responded within a few days of starting guanfacine treatment. Her response to guanfacine was marked by a significant reduction in self-harming behaviors and aggression, resulting in a period of stability that was not observed in the previous 4–5 years. There was a month when she was emotionally calm and did not exhibit any self-harming behaviors. She remained in the ward pending therapeutic placement, and there were successful home leaves without any remarkable incidents. The reduction in emotional dysregulation allowed her to engage meaningfully with her environment. Although some self-harm behaviors recurred later, particularly due to the stress of a prolonged hospital stay while awaiting therapeutic placement, their frequency and severity were notably reduced. Miss A was also able to verbalize her distress without acting it out, and her aggression decreased significantly with no further suicidal thoughts reported.

After three months of hospitalization, Miss A transitioned to therapeutic placement. Although she continued to exhibit occasional self-harm related to interpersonal difficulties, her suicidal thoughts and aggression became far less frequent and severe. Her care plan now includes regular visits by a therapist and mental health nurses to support her ongoing development and adjustment to the community. The overall reduction in emotional dysregulation, aggression, and self-harm following the introduction of guanfacine suggests a positive response, although the long-term efficacy and safety of this treatment for managing Complex PTSD in adolescents require further investigation. Table 1 shows the medications prescribed to Miss A during the period from March 2023 up to the writing of this case report in August 2024.

DISCUSSION

The management of Complex PTSD in pediatric populations with comorbid learning disabilities and suspected ASD presents a significant clinical challenge. Miss A's early life experiences of neglect and abuse likely played a key role in her development of Complex PTSD, which is characterized by the frequent reliving of traumatic memories and disturbances in emotional regulation, self-concept, and interpersonal relationships. The presence of a learning disability and suspected ASD further complicated her treatment, as these conditions influenced her ability to process emotions and respond to stressors.

As therapeutic efforts to help her with emotional regula-

Table 1. Oral medications prescribed for Miss A

Medication	Start date	End date	Dosage
Melatonin extended release (Circadin)	March 2023	Current	4 mg bedtime
Promethazine	March 2023	October 2023	Up to 25 mg once every 6 hours as needed
Lorazepam	March 2023	July 2023	Up to 0.5 mg once every 6 hours as needed
Aripiprazole	April 2023	October 2023	Up to 10 mg daily
Fluoxetine	June 2023	Current	30 mg daily
Guanfacine extended release (Intuniv)	September 2023	Current	2 mg daily taken at night

tion did not lead to a noticeable improvement, pharmacological treatment was deemed necessary. Initially, Miss A's treatment included melatonin to manage her sleep disturbances, and promethazine and lorazepam as needed for acute agitation. However, the limited efficacy of these medications necessitated the introduction of aripiprazole, an atypical antipsychotic, to address her severe aggression and irritability [17,18]. Although aripiprazole is sometimes used to manage irritability and aggression in ASD and various other psychiatric conditions, its effects were insufficient in Miss A's case, necessitating further intervention. The addition of fluoxetine was aimed at addressing underlying anxiety symptoms that are often comorbid with PTSD. The incremental titration of fluoxetine reflected an attempt to optimize her emotional stability in the community. However, Miss A's ongoing difficulties and eventual readmission highlighted the need for a novel treatment approach.

The decision to introduce guanfacine was based on its pharmacological profile, which includes reducing sympathetic nervous system activity and potentially alleviating hyperarousal symptoms in patients with PTSD. Guanfacine may reduce hyperarousal symptoms by acting on the presynaptic neurons in the brainstem, leading to a reduction in norepinephrine discharge and sympathetic tone [8]. Additionally, it may directly stimulate the postsynaptic alpha-2A adrenergic receptors in the prefrontal cortex, enhancing impulse control and emotional regulation [19]. Although there is limited robust evidence supporting its use in PTSD, the efficacy of guanfacine in treating ADHD and other conditions involving impulsivity and hyperarousal justified its application in this case [7,20].

Hyperarousal symptoms such as heightened anxiety, irritability, and emotional dysregulation are frequently observed in PTSD and are thought to contribute to self-harming behaviors. A chronic state of heightened arousal may overwhelm an individual's ability to regulate emotions, leading to impulsive or maladaptive coping mechanisms, such as self-injury, to manage overwhelming feelings or regain a sense of control [21]. In Miss A's case, the reduction in hyperarousal symptoms following guanfacine treatment corresponded to a decrease in her self-harming behavior. This suggests that, by alleviating hyperarousal, guanfacine may help mitigate the emotional dysregulation that drives self-injury. This connection reinforces the potential benefit of targeting hyperarousal symptoms to reduce self-harming behaviors, highlighting the importance of a trauma-informed approach for managing such complex cases.

Miss A's significant reduction in self-harm and aggression following the introduction of guanfacine suggests that alpha-2 adrenergic agonists play a valuable role in the management of Complex PTSD, particularly in cases of pronounced hyperarousal and emotional dysregulation. It is possible that Miss A may have undiagnosed ADHD features, which could make guanfacine particularly effective for her [11]. This medication's potential to reduce emotional dysregulation symptoms creates an opportunity for other therapeutic interventions to be more effective.

Despite case reports highlighting the potential utility of guanfacine in reducing hyperarousal and improving emotional regulation, there is a scarcity of larger studies and clinical guidelines systematically exploring its efficacy in treating Complex PTSD [20]. The positive response observed in Miss A's case suggests that guanfacine could be a valuable addition to the pharmacological toolkit for such cases; however, further research is necessary to validate these findings.

Future research should also explore the efficacy and safety of guanfacine and other alpha-2 agonists in treating Complex PTSD, particularly in populations with comorbidities, such as learning disabilities, ADHD, and ASD. Larger studies could help to establish guidelines for their use and better understand the mechanisms through which they affect PTSD symptoms.

Conclusion

Patient treatment underscores the potential benefits of guanfacine in managing specific symptoms of Complex PTSD when standard treatments fall short. Her positive response to guanfacine offers valuable insights into its practical use and contributes to the ongoing dialogue on optimizing treatment approaches for Complex PTSD in adolescents. Although the results of this case are encouraging, further investigation of pharmacological strategies for complex and comorbid psychiatric conditions is warranted.

Ethics Statement

Informed consent was obtained from the patient and her parents in the preparation and publication of this case report.

Availability of Data and Material

Data sharing not applicable to this article as no datasets were generated or analyzed during the study.

Conflicts of Interest

The author has no potential conflicts of interest to disclose.

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