

# THE USE OF CLONIDINE IN POST-TRAUMATIC STRESS DISORDER

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This case report examines the use of clonidine to successfully treat a child suffering from post-traumatic stress disorder (PTSD). This case shows an unintentional washout period that exemplifies a cause-effect relationship between clonidine and the inhibition of reenactment symptoms of PTSD. (*J Natl Med Assoc.* 1999;91:475-477.)

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**Key words:** children

◆ post-traumatic stress disorder ◆ trauma

Clonidine, an alpha adrenergic agonist, is useful in treating hyperactivity seen in patients with chronic combat-related post-traumatic stress disorder (PTSD).<sup>1</sup> In addition, studies using clonidine for treatment of aggressive children have shown promise.<sup>2</sup> Because of its sedative effects, its usefulness in sleep disorders in children with attention-deficit/hyperactivity disorder (ADHD) has been described in clinical practice.<sup>2</sup> Harmon and Riggs<sup>3</sup> reported preliminary clinical findings of an open trial with seven preschool-aged children. This study suggested clonidine's effectiveness in aggressive behavior, sleep disturbances, and symptoms of hyperarousal. In their study, parental anecdotal responses were the "medication was the most significant aspect of their child's treatment, resulting in the greatest improvement in target symptoms and behavior."<sup>3</sup> This article demonstrates a causal relationship between clonidine and the decline of symptoms of reenactment seen in PTSD.

## CASE REPORT

During the fall of 1996, an 11-year-old African-

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American girl was referred to the Community Mental Health Council (CMHC), Inc by the Department of Children and Family Services (DCFS) because of inappropriate sexual and aggressive behavior and her disrespectful attitude. Her records revealed a history of multiple placements due to difficulty controlling her behavior of reenacting sexual abuse that occurred before the age of three. This reenactment was exhibited by sexually molesting other children. For example, she would have boys mount her and engage in oral sex with girls. She also would sexually touch boys and girls. Additionally, her foster mother reported multiple episodes of nightmares where the patient would wake up screaming. The foster mother also described the emergence of "two personalities," one childlike and the other adultlike, easily distinguishable by speech patterns. The patient also exhibited aggressive behavior. She had a disrespectful attitude toward her foster mother, picked fights with foster siblings, and physically abused younger children.

There was no information on the patient's perinatal or developmental history. Department of Children and Family Services records revealed that before age three, she was molested and beaten by her mother, forced to drink water from the toilet, and molested by her father while her mother watched. As a result, the patient and her younger sister were taken into DCFS custody in the winter of 1987. Both were subsequently placed into the same foster home in 1988. She remained in this foster home for five years.

Following her mother's death from a drug overdose

in 1990, a subsequent increase in sexually inappropriate behavior was noted resulting in placement in a second foster home. This second placement failed because of her difficulties conforming to rules, increased sexual behavior, and a report of "hearing voices." The patient was subsequently hospitalized for what her foster mother described as a "nervous breakdown."

During the hospitalization, a psychological evaluation revealed distortions of reality and disorganized thinking, but no medications were reportedly given for these symptoms. Methylphenidate hydrochloride and another unknown medication was given to relieve some of her other symptoms, but did not cause an improvement. Upon discharge, she returned to her original foster home.

In the spring of 1993, the patient was placed in a residential facility due to her continued uncontrollable sexual and aggressive behavior. Here she received counseling for sexual perpetrators, was placed on clonidine .05 mg three times daily, and maintained contact with her foster family through monitored visits. After two years of treatment, her final report revealed "no evidence of a formal thought disorder or a major mood disorder." Furthermore, she was having "fewer problems respecting other people's boundaries" and her inappropriate sexual behavior was "well contained."

Subsequently, she was transferred to a second facility for continued treatment with a diagnosis of PTSD in partial remission. During this phase of her prior treatment, her medication was increased to clonidine 0.1 mg three times daily. Progressive improvement in all behavior areas was documented. These areas included increased expression of emotional issues and decreased sexual and aggressive behavior. After 18 months of continued improvement, she was returned to her original foster home with a plan for follow-up services at CMHC, Inc.

Initially, she did well, maintaining appropriate behavior at home and school. Because of a delay in transferring her follow-up services, her medication regimen was disrupted, causing her behavior to deteriorate rapidly. She again began displaying sexually inappropriate behavior at home, aggressive, manipulative behavior at home and school, and daily fighting. According to the patient's foster mother, the two voices, one of an adult and one of a child, returned along with her nightmares.

In the winter of 1997, she was restarted on clonidine 0.1 mg three times daily, and the inappropriate behavior ceased within weeks. By the end of spring,

her grades had returned to "A's" in math and "B's" and "C's" in other areas. She was no longer fighting, the nightmares had disappeared, and she again was speaking appropriately with her siblings. Encouragingly, the patient can recognize the changes in her own behavior on and off medications. She is aware that without medication, she has low self-esteem, becomes angry and violent, and does not care about anyone else. Furthermore, she commented, "I'm doing pretty well now, and I like myself better."

## DISCUSSION

Post-traumatic stress disorder has been studied extensively in adults and adolescents resulting in established diagnostic criteria recognized in the *Diagnostic and Statistical Manual, Fourth Edition*.<sup>4</sup> In young children, however, diagnosis is less clear.<sup>5,6</sup> Terr<sup>5</sup> explains the diagnostic dilemma results from a constellation of symptoms that mimic ADHD, conduct disorder, affective disorders and anxiety disorders. Bell<sup>7</sup> has expanded this list to include 16 other possible diagnostic categories that result from traumatic stress. Many factors are believed to contribute to this diagnostic conundrum. These include the trauma and its severity, the available support from the family, the psychiatric history of the family, and the child's age and stage of development.<sup>8</sup> Perry delineates the phenomena further by extrapolating from the diathesis-stress model of mental illness to conceptualize descriptive patterns seen in traumatized children.<sup>8</sup> Perry states "in general . . . if affective or anxiety disorders were in the family history, the expressed symptoms were mood and anxiety disorders, and if there was a strong history of alcoholism and sociopathy, symptoms were more conduct disordered."<sup>8</sup> Furthermore, Perry<sup>8</sup> recognized that the three salient features of PTSD in adults are seen in children as well as symptoms of disorganized conduct (often aggressive or sexualized, dependent on the original trauma).

This patient had been physically and sexually traumatized repeatedly by her parents before the age of three. Given this information, and the history of substance abuse, we recognize sociopathic behavior among both parents. Additionally, the parental history of substance abuse also may suggest a parental affective or anxiety disorder as well. We suspect that, despite the "supportiveness" of her first foster family, being taken into DCFS custody and placed in a new unfamiliar environment added to the trauma. In this new environment, we saw both

aggressive and sexualized behavior as described in detail earlier. We also noted inattentive and hyperactive behavior and affective lability, all of which could be anticipated given the patient's history.

There have been a multitude of studies in the adult population specifically in combat-related PTSD<sup>9</sup>; however, only recently has trauma in children been recognized as such a public health problem.<sup>10</sup> In the past 20 years, descriptive studies have shown the effects of Type I (single episode) and Type II (multiple episode) trauma.<sup>5</sup> Studies also have shown the extensive impact of trauma on youth.<sup>11</sup> In addition, biological trials exhibit the neurobiologic sequelae of childhood trauma.<sup>8</sup> Combining these two paradigms with recent clinical trials, one can understand the rationale of using adrenergic agonists in the treatment of PTSD in children.

Many researchers have described the role of the adrenergic system as a response to a stressful situation.<sup>8,12</sup> Perry<sup>8</sup> discusses the noradrenergic nucleus in the locus coeruleus and its role in "regulation of affect, irritability, locomotion, arousal, attention, and startle." This response is a reversible one necessary for survival—the fight or flight response. However, Perry<sup>8</sup> reports that this response may be irreversible with sufficient "duration, intensity, or frequency" of trauma that is likely due to a phenomenon of changes in receptor sensitivity.

In this case, we have seen the difficulty of this patient to regulate affect and irritability as evidenced by her mood swings and aggressive impulses. We also have seen her inability to regulate arousal and startle as evidenced by her nightmares. Lastly, we have seen her inability to regulate attention as evidenced by her inability to follow instructions and complete tasks. These difficulties in regulation are consistent with the aforementioned adrenergic hypothesis.

A few open trials have examined the efficacy of clonidine in children with promising results.<sup>3,8</sup> However, because of the inability to control for bias, there are limitations to extrapolating from these studies. Our patient had a resolution of symptoms while on medication, but off the medication, had a relapse. Once medication was restarted, the symptoms again were resolved. This temporal relationship exhibits a causal relationship in the efficacy of clonidine on the symptoms of PTSD. Although this report was not blinded to the family, there was such an exaggeration of the response on and off medication, one can imply a relationship.

## CONCLUSION

This case report illustrates the successful use of clonidine in a child exhibiting aggressive and sexualized behavior resulting from extensive abuse and neglect experienced in childhood. It is evident from a review of the literature that the successful use of an alpha adrenergic agonist for the treatment of PTSD is plausible. We concede that pharmacotherapy is only one aspect of treatment for PTSD, but believe that this case exemplifies a dimension in recognizing its efficacy. Furthermore, the next level of research would preferably be double-blind trials. However, given the side-effect profile of such a drug, the methodology required to carry out such a study may be cumbersome. Despite the absence of scientific trials and because the incidence of childhood trauma has reached such proportions, potential treatment options that are safe and effective should be considered.

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