CASE REPORT

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Serotonin Syndrome in a Prisoner

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ABSTRACT: The authors present a case of serotonin syndrome in a prisoner who was transferred to a psychiatric hospital because of increasing psychotic symptoms. They discuss some factors that appear to put some populations at higher risk for such syndromes, and recommend increased vigilance for such problems in those identified populations.

KEYWORDS: forensic science, forensic psychiatry, serotonin, SSRI, adverse reaction, prisoners, managed care

The use of serotonergic medications has become commonplace since the widespread introduction of fluoxetine in 1988. Other examples of such medications include trazodone, paroxetine, sertraline, fluvoxamine, clomipramine, and buspirone. Most of these medications are both effective in the treatment of severe depression and selected other mental disorders, but also relatively safe because of their low toxicities and low prevalence of serious side effects. Some of the SSRI's have also been reported to be effective in the treatment of impulsive violence and certain paraphilias (for a comprehensive review, see 10). However, recent reports in the literature have described toxic reactions to SSRIs. One such reaction, the serotonin syndrome, consists of confusion, fever, shivering, diaphoresis, ataxia, hyperreflexia, myoclonus and diarrhea (1–6), and is potentially fatal (3). The mechanism is believed to be mediated by overstimulation of 5-HT1a receptors in the CNS (1,2). Treatment usually consists of withdrawing the serotonergic agent and supportive measures (1,2). We report the case of an inmate in a correctional institution who developed this syndrome while receiving multiple medications, and discuss reasons we believe prison inmates might be at higher risk for toxic drug interactions.

Case Report

J.A. was a 46-year-old white male who had been incarcerated for nine years in a maximum security prison for sodomy and use of a child in a sexual performance. He was transferred to the corrections treatment unit of a state mental hospital because prison mental health staff thought he was becoming psychotic and might need more medication. He was hallucinating, talking to himself, had been noted to spill his food on the floor, and tried to stuff his socks into his drinking cup. He also had been incontinent of urine prior to transfer.

Upon transfer, he was confused and disoriented to person, place and time. His speech consisted of the barely audible mumbling of word salad, and he fumbled in a non-purposeful fashion with his clothes. He had generalized myoclonus. His admission vital signs were a temperature of 99.7 degrees Fahrenheit, his pulse was 90 beats per minute and regular, his respirations were 20 per minute, and his blood pressure was 120/82 mm Hg. Neurological examination showed his pupils to be round, equal but not dilated, and his face was symmetrical. He could not cooperate with testing for ophthalmoplegia. Muscle strength was 5/5 in all extremities, and tone was increased. Deep tendon reflexes were 4+ and symmetrical bilaterally. He had greater than 10 beats of clonus in both ankles. Plantar reflexes were up-going on the left, indeterminate on the right. His gait was ataxic, and his Romberg was negative. The rest of the physical examination was unremarkable. At the time of admission serum electrolytes, liver enzymes, glucose, CBC, thyroid function tests, hepatitis screen, and urinalysis were all normal. RPR and HIV were negative and a urine drug screen was negative for illicit substances.

We learned that J.A. was first treated for depression in 1990, and had been treated intermittently with fluoxetine, trazadone and thioridazine. Since the summer of 1995 he had been taking paroxetine 20 mg b.i.d. and desipramine 200 mg qHS. In the late summer of 1996 he began complaining of both auditory and visual hallucinations so haloperidol 5 mg b.i.d., benztropine 1 mg b.i.d. and hydroxyzine 50 mg b.i.d. were added shortly before he was transferred to the mental hospital. His paroxetine had been increased to 30 mg b.i.d. just prior to the transfer.

Once hospitalized, his neurological symptoms were so prominent that toxicity was suspected, so medications were discontinued and thiamine was administered, the latter out of concern that this might be a Wernicke's Encephalopathy. His mental status cleared rapidly over the next several days to the point where he was oriented, lucid, appropriate and showed no signs or symptoms of mental or neurological disease for the duration of his several months' hospitalization. He denied having been drinking or using illicit drugs, and there was no evidence to the contrary. He was ultimately returned to prison to continue serving the balance of his confinement.

Discussion

We believe this case deserves reporting for two reasons. First it illustrates a case of serotonin syndrome (sometimes called toxic

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serotonin syndrome) and reminds the physician who prescribes SSRIs to be alert to this disorder, especially in patients being treated with high doses of serotonergic medications alone or in combinations with other medications. For example, this syndrome has been described as occurring more frequently in combination treatment involving trazodone plus other SSRIs (4,9), in combinations of MAOIs and SSRIs (1,2), MAOIs and opiates (1,2), SSRIs and lithium, (8), and SSRIs and over the counter cold remedies such as dextromethorphan (3).

Secondly, it warns of the increased possibility of untoward drug reactions or interactions in under-served patient care settings, in this case prisons. In 1995, the Department of Justice estimated that there were approximately 1.1 million inmates in departments of corrections in all the United States, with the number increasing by almost seven percent from the previous year (7). In some estimates perhaps between 10 and 20% of prison inmates in the U.S. suffer from a major mood or sufficiently limiting anxiety disorder (10,11) such that they might be considered suitable for treatment with an SSRI. Because of the large number of inmates who require any psychiatric attention, the few psychiatrists and other mental health professionals who work in prisons are often unable to provide close supervision and follow-up visits as often as might be indicated, despite best intentions. Furthermore as many states are contracting with managed care organizations to provide medical care to inmates, this situation is only compounded. The chances of psychiatric illnesses being diagnosed and treated by non-psychiatrists or even non-physicians is greater in the managed care setting. The authors believe these factors only increase the likelihood of treatment error, inadequate monitoring for adverse reactions/interactions, and drug intoxications such as described above. We also believe that other populations at risk for such interactions include patients in nursing homes, residential schools for the mentally retarded, alcoholism and drug abuse treatment centers, other institutions, and possibly in public health clinics that serve an indigent population.

The culture of prisons must also be considered when evaluating patients such as the one above. For example, inmates have been known to save their medications and take them in large doses, either for recreational or intoxicating effects or to attempt suicide. Plus, prisoners trade medications amongst themselves, and consume a wide variety of illegal substances and home-brewed alcoholic beverages. Any of these alternative sources of illicit substances can compound the side effects or adverse reactions of prescribed medications, especially when optimal supervision of the subjects at risk cannot be carried out.

In conclusion, we believe this case illustrates the serotonin syndrome, and highlights the need for adequate supervision of any patient taking psychotropic medications. Prisoners are one example of a population with a high incidence of mental illness, but a low level of careful medical supervision. Such populations we believe are at risk for serious adverse drug reactions, and warrant efforts by state governments to increase the delivery of quality mental health care in those settings.

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