Sertraline-Induced Urinary Retention Reversed by Mirtazapine in an Adolescent

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Urinary retention is defined as a condition in which impairment of bladder emptying results in the retention of residual urine. Its incidence has been most studied in adult males, with an overall incidence of 4.5 to 6.8 per 1,000 person-years.[1] It is more infrequent in children and adolescents.[1] Adverse drug reactions remain one of the more common etiologies for causing urinary retention, with the majority of these agents causing this problem via anticholinergic mechanisms.[2] Among psychotropics, selective serotonin reuptake inhibitors (SSRIs) have only rarely been linked to urinary retention, typically in conjunction with antipsychotics or benzodiazepines.[1] Case reports have particularly implicated fluoxetine and fluvoxamine, with minimal reports of other SSRIs.[3] Here, we present a case of an adolescent who developed acute urinary retention with an initial antidepressant trial of sertraline.

Case Report

A 16-year-old adolescent male with no prior psychiatric or medical history presented to outpatient psychiatry due to complaints of incessant worries. He was subsequently diagnosed with generalized anxiety disorder and started on his first psychotropic for treatment purposes: sertraline 25 mg every morning. It was initially well tolerated and increased to 50 mg each morning for further effect at his follow-up visit a month later. Within 2 weeks of dose escalation, he began to develop symptoms of urinary retention. He endorsed lower abdominal pain and an inability to void completely, with only brief streams of urine produced with every attempt. He was an otherwise healthy individual, with no prior episodes of this urination problem, and was taking no other medications or supplements. His physical examination, including neurologic, genitourinary, and rectal systems, was unremarkable. Urinalysis, urine culture, and sexually transmitted disease panels were negative. Given suspicions for SSRI-induced urinary retention, his sertraline was decreased back to 25 mg. At his subsequent visit a month later, he reported worsening anxiety with similar urinary problems. A decision to initiate mirtazapine 7.5 mg was then made to target his affective features further. He reported improvements in his anxiety and urinary symptoms 2 weeks later. Remission of his anxiety and resolution of his urinary retention was reported a month later. Sertraline was then discontinued, and maintenance with mirtazapine was used thereafter.

Discussion

The current literature focusing on urinary retention secondary to SSRIs is sparse. Such an adverse effect has previously been reported in only case reports, suggesting that it may occur only when SSRIs are prescribed in combination with other higher risk agents. Our report documents the first case with sertraline monotherapy that was reversed by the addition of mirtazapine.

A variety of neural pathways and neurotransmitters are involved in micturition. Serotonin, in particular, facilitates storage by increasing sympathetic activity and inhibiting parasympathetic control over voiding.[3] Furthermore, Onuf's nucleus is a collection of neurons that control the urethral external sphincter. It contains a high density of 5-HT_2 receptors; thus, the mechanism of SSRIs may result in subsequent inhibition of serotonin uptake within this sphincter, causing excessive external sphincter tone.[4] In children and adolescents, the rate and expression of serotonin transporter function is potentially more sensitive than in adults.[5] Mirtazapine, on the other hand, is an α_2 antagonist that enhances serotonergic neurotransmission indirectly and does not directly inhibit serotonin reuptake.[6] Although mirtazapine still possesses some 5-HT_{2A} and 5-HT_{2C} receptor antagonism, its effects on these receptors is far less potent in comparison to the generalized 5-HT reuptake inhibition caused by SSRIs. Additionally, its significant noradrenergic potentiation may lead to more bladder relaxation and thus counterbalance any serotonin-induced excessive tone.[7]

In conclusion, urinary retention is a rare but troublesome adverse effect that may be induced by antidepressants and SSRIs especially. There are no recent reports linking such agents to urinary problems, let alone prior literature commenting on sertraline monotherapy in children or adolescents. Further consistent monitoring and reporting of these adverse effects could lead to more research and understanding of how to prevent and treat this condition, particularly in our younger patients.

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