Improvements in Micturition and Urinary Retention After Switching From Amisulpiride to Paliperidone in a Schizophrenic Patient

To the Editor: The influence of antipsychotics in micturition is an important issue for life quality of schizophrenic patients. Here, we share a case of a patient with schizophrenia, who suffered severe voiding difficult and urinary retention necessitating catheterization with the use of amisulpiride. The micturition problems were relieved after switching from amisulpiride to paliperidone.

Case Report

"Mr. Z" is a 45-year-old chronic schizophrenic patient with stable control of psychotic symptoms under the treatment of amisulpiride 600 mg/day for 4–5 years. In the last month, he has complained of a first episode of severe voiding problems, which included difficulty evacuating urine, frequently going to the toilet, but with no urinary output, and significant anxiety while facing difficult micturition. No significant changes in psychotic symptoms were observed. The urodynamic study revealed urinary retention and significant voiding dysfunction, with urethral sphincter spasm. He received the parasympathetic muscarinic stimulator buthanechol and selective $alpha_{1A}$ blocker tamsulosin to improve difficult voiding. However, the response was still limited, and he visited to our emergency department frequently because of the urinary retention; at last, he received urinary catheterization with a urine bag to relieve this problem. There were no concurrent psychotropic medications that might have contributed to the voiding dysfunction, such as anticholinergic medications or antidepressants, etc. No significant comorbid medical illness or substance abuse was noted. He also started to experience first episodes of severe anxiety caused by significant micturition problems. Because of the impression of possible antipsychotic-related micturition difficulty, the amisulpiride was switched to paliperidone (6 mg/day). After 2 weeks of treatment, he started to feel able to evacuate urine spontaneously and with less urinary retention. The accompanying anxiety was also decreased after improvements in voiding. No exacerbations of psychotic symptoms or intolerable side effects were mentioned after switching. The urodynamic study was reassessed at the third week after paliperidone therapy, and the results showed mild improvements in urethral sphincter spasm and urinary retention.

Discussion

The dopamine system is important for micturition, and dopamine D_2 receptors are involved in the facilitation of micturition.[1] Amisulpiride, a dopamine D_2 receptor antagonist,[2] might inhibit voiding ability because of the inhibition of D_2 receptor-related micturition facilitation; 10% of urinary retention is associated with concomitant medications, including antipsychotics.[3] Antipsychotics, such as clozapine, olanzapine, and haloperidol, have also been suggested to influence the inter-contraction interval, bladder capacity, bladder residual volume, micturition volume, external urethral sphincter function, and resting pressure of the bladder through the dopamine D_2 antagonism and accompanying antimuscarinic effects.[4–6] Ziprasidone is also reported to cause urinary hesitancy and urinary retention.[7] In this case, urinary retention appeared after 4 years of amisulpiride use, which suggested that this patient might have changes of dopamine-receptor sensitivity and organic deteriorations of the urological system. The physiological evidence from the urodynamic study also supported this hypothesis. The urinary difficulties after treatment with paliperidone might be related to $alpha_1$ antagonism, $alpha_2$ antagonism, lack of anticholinergic effects, and serotonin $5HT_7$ antagonism.[8–10] Although paliperidone also has D_2 antagonism effects, paliperidone enters the brain less because of greater affinity for the P-glycoprotein,[8] which might explain the relief of voiding dysfunction in this patient after using paliperidone. $5HT_7$ antagonism effects can also help relieve anxiety.[11] Although amisulpiride also has $5HT_7$ antagonism effects, without anticholinergic effects, amisulpiride still lacks alpha-adrenergic antagonism, and its D_2 antagonism might be higher than paliperidone because of the P-glycoprotein effects. These literature reviews may help us explain why this patient improved after using paliperidone, and this case report might provide us a clue about the urological side effects of atypical antipsychotics and the possible management of this issue.

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