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Concordant Genes, Discordant Disorders:

A Case of Simultaneous Onset of Nonidentical Psychosis in Identical Twins

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Schizophrenia and bipolar affective disorder both have their onset predominantly in early adulthood. Various twin, adoption, family, and genetic studies^{1–3} have concluded that both schizophrenia and bipolar disorder have similar and substantial heritability and show increased cross-disorder relative risk due to shared genetic factors. Both schizophrenia and bipolar disorder have multifactorial causation with many risk factors, including genetic; however, each risk factor is individually insufficient to cause the disorder. Although there has been mention of simultaneous occurrence of schizophrenia or affective disorder in twins, to the best of our knowledge, there are only a few cases that report simultaneous onset of nonaffective psychosis in one identical twin and affective psychosis in the other.^{4,5}

CASE REPORT

Twin girls were born in the year 2000 by normal delivery, and twin A was older by 3 minutes. There was no history of childhood disorders or family history of psychiatric disorders. They were described as 2 “peas in a pod,” with teachers and others often having difficulty distinguishing them. But, as they grew into their teens, twin A exhibited an introverted temperament. In contrast, twin B was very outspoken, social, and intelligent.

Family members first noticed a change in the behavior of twin A the day after she returned from her aunt’s house in December 2020. She appeared fearful and vigilant. She reported that she heard voices discussing and abusing her, and she would close her ears tight to avoid those voices. She was so afraid that she would not let her sister or parents out of her sight. Her appetite, sleep, and self-care declined within 2 days. She worried that something terrible would occur if she slept. Twin B was worried for her sister, but she became extremely cheerful 1 day after onset of her sister’s illness. She boasted about her capabilities and contacts with

eminent politicians. She would sing and dance around and tried to cheer her sister up. She also became agitated and abusive toward family members when they prevented her from talking or going out, which was unlike her usual nature.

In a week, twin A became more aloof with episodes of immobility, mutism, and pooling food in the mouth, and twin B’s agitation worsened. In this condition, the twin sisters were brought to the hospital. Twin A’s mental status examination revealed fearfulness, apprehension that something terrible would happen to her, mutism, posturing, and passive obedience. Twin B’s mental status examination showed exalted affect with grandiose delusions and restlessness. The Peas in the Pod Questionnaire⁶ was administered, and the combined score was 8, indicating monozygosity. Both twins had amenorrhea of 1.5 months and iron deficiency anemia at admission, which were addressed. Twin A was diagnosed with schizophrenia and twin B with bipolar I disorder (both per DSM-5 criteria). Twin A responded to olanzapine and lorazepam, while twin B improved on quetiapine and lithium. Both were discharged after symptomatic remission.

DISCUSSION

Cases of shared psychosis or mania in twins have been described in the literature,^{7,8} but this case is worthy of report due to simultaneous presentation of schizophrenia in 1 twin and psychotic mania in the other. Various nonhierarchical family studies have shown significant aggregation between schizophrenia and bipolar disorder. A Swedish study² found a genetic correlation of 0.6 between schizophrenia and bipolar disorder. Studies also showed that patients with bipolar mania psychosis are genetically more similar to schizophrenia patients than those with bipolar depressive psychosis or no psychosis.⁹ The simultaneous onset of illness might be due to CLOCK, PER3, and TIMELESS genes associated with bipolar disorder, schizophrenia, and schizoaffective disorder.^{10,11} Twins are closely related physically and emotionally and often share similar upbringing, values, and environment.⁷ The twins in this case also shared a very close and symbiotic relationship. The simultaneous onset of discordant psychiatric diseases in these identical twins prompts a search for factors responsible for shared susceptibility between schizophrenia and bipolar disorder.

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