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Case Report

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The Kahlbaum Syndrome is a Risk Factor for the Development of Neuroleptic Malignant Syndrome

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Abstract

A case is presented of a 57-year-old woman with psychotic deterioration and catatonia, who was ultimately found to have Kahlbaum Syndrome (KS). The patient was initially diagnosed with schizophrenia and treated with intramuscular injection olanzapine. Her condition rapidly worsened to a state consistent with neuroleptic malignant syndrome. Supportive care and diazepam yielded only partial benefit. However, switching from diazepam to lorazepam and combination with electroconvulsive therapy (ECT) led to the resolution of NMS. The authors discuss the possibility of KS as disease entity and the clinical utility of KS classification.

Keywords: Neuroleptic malignant syndrome; Kahlbaum syndrome; Electroconvulsive therapy

Introduction

Neuroleptic malignant syndrome (NMS) is a life-threatening adverse event associated with antipsychotic therapy, and continues to be reported even with new antipsychotics [1-3]. Higher dose, rapid rate of dose increase and parenteral administration of antipsychotics have been defined as potential risk factors for NMS [3-5]. However, information regarding the clinical risk factors is much more limited, and no specific psychiatric diagnosis predisposing to the syndrome has been reported. Recent studies have shown that catatonia is a risk factor for developing NMS [4-7].

Catatonia was first described by Kahlbaum as a psychomotor syndrome with motor, affective and behavioural symptoms, such as akinesia, catalepsy, stupor, mutism, negativism, perseveration, stereotypies, mannerisms, echophenomena, waxy flexibility, and automatic obedience [8]. He emphasized that catatonia was strongly associated with affective illness, both depression and mania. Although catatonia can be caused by various neurological, medical, or psychiatric disorders, among inpatients with catatonia, nearly 50% are related to mood disorders [9]. Based on Kahlbaum's concept, Peralta et al [10] defined catatonia resulted from affective disorder as Kahlbaum Syndrome (KS).

We present the case of a 57-year-old woman with KS who developed NMS, soon after dose of 10 mg intramuscular olanzapine was administered. In this context, the possibility of KS as disease entity and the clinical utility of KS classification was discussed.

Case Report

A 57-year-old married woman was admitted to the psychiatric ward for an acute psychotic deterioration with marked psychomotor disturbance. She presented maintenance of a rigid posture, negativism (motiveless resistance to instructions), and mutism; delusion of poverty and delusion of reference was found whenever communication with the patient was possible.

Her illness was begun with a major depressive episode 7 years previously. After that, she experienced several other recurrent depressive episodes with depressed mood, loss of interest, loss of energy, guilt feelings, suicide ideation, delusion of poverty, persecutory delusion and auditory hallucination. Although she had been in good drug compliance since the onset of her illness, her illness cycled with frequent relapses of predominant psychotic episodes (delusion of poverty, persecutory delusion and auditory hallucination). Given the severity and chronicity of her illness, she was institutionalized for more than 15 times in several psychiatric hospitals since

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the onset of her illness. One year before her latest admission, she had been institutionalized for almost the whole year in psychiatric hospital because of severe psychotic symptoms. Previous treatments for the patient included a variety of antidepressant (nortriptyline up to 150 mg/day, clomipramine up to 125 mg/day, mirtazapine up to 60 mg/day, escitalopram up to 20 mg/day) and antipsychotics (haloperidol up to 20 mg/day, chlorpromazine up to 900 mg/day, risperidone up to 8 mg/day, olanzapine up to 20 mg/day, quetiapine up to 800 mg/day) and benzodiazepine. The patient was diagnosed with major depressive disorder with psychotic feature when she was first admitted to the local hospital 7 years ago but since later 3 years she was diagnosed with schizophrenia because of persistent and refractory psychotic symptoms.

Diagnosis of schizophrenia, catatonic type was also considered because of persistent psychotic and catatonic feature when she was admitted to our psychiatric ward. She was given 2 intramuscular injections of olanzapine 10 mg for treatment of acute psychotic symptoms. Following 24 hours of treatment, insomnia and psychomotor agitation was somewhat subsided but catatonic symptoms was persistent.

Three days later after admission, the patient suddenly developed hyperthermia (38.2 - 39.5 °C) and laboratory tests showed leucocytosis (WBC: 15.4 x 10^3/μL; normal values: 4.0 - 11.0 x 10^3/μL), elevated creatine kinase (CK: 1771 U/l; normal values: 24 - 190 U/l) and increased aldolase (15.6 U/l; normal values: 1.5 - 12.0 U/l). On physical examination, she showed severe rigidity, immobility, mutism, extreme negativism, and cataplexy. Furthermore, she had unstable vital signs and she was confused and disoriented in time and place. No source of infection or other clinical signs of pathology were found. A diagnosis of NMS was suggested and treatment with intramuscular injections of diazepam (15 mg/day) was started. Advisedly, other psychopharmacologic treatment was discontinued except for diazepam.

Supportive therapy, including hydration, electrolyte correction and blood pressure aids were given. Moreover, the patient was started on diazepam 15 mg – 20 mg daily by intramuscular injections. Extensive laboratory and brain imaging evaluations, including X-ray of the chest, abdominal CT and MR cerebral scan, blood and urine culture, were all unremarkable.

Five days after admission, given the lack of improvement with pharmacologic therapy, the patient was referred for a course of bilateral ECT. Anesthesia was induced with 60 mg of methohexital and muscle relaxation with 60 mg of succinycholine, to minimize the risk of malignant hyperthermia. Diazepam was stopped and switched to lorazepam (3 mg/day). She responded very well and was ambulatory and kempt by that same afternoon. After the third ECT session, the patient showed a significant improvement in mood, psychotic features, catatonia, and biochemical indices (WBC: 9.8 x 10^3/μL, CK: 984 U/l, aldolase: 12.7 U/l). The patient fully recovered and all laboratory measures returned to normal after the sixth ECT session. She completed an acute course of 10 bilateral ECTs, returned to her baseline of functioning.

An antipsychotic medication was reinitiated in order to prevent relapse of psychotic symptoms two weeks after completion of 10 bilateral ECTs. We began with quetiapine at a low dose of 50 mg at bedtime, chosen for its low risk of causing extrapyramidal symptoms. Vital signs were monitored every 4 hours and CK levels were obtained daily to evaluate for possible recurrence of malignant symptoms. The patient tolerated quetiapine well. When the patient was discharged with 400 mg quetiapine and 3 mg of lorazepam, she showed no thought disorder or residual psychotic symptoms. At 4 months follow-up, the patient was readmitted with manic episode; elated mood, grandiosity, decreased need for sleep, spending sprees, racing thoughts, pressure of speech, sexual promiscuity, and aggressive behavior. We also learned that the patient had symptoms suspected as manic or hypomanic episode 11 months previously through strict review of medical record and interview with her family; insomnia, increased goal directed activity, pressured speech, spending sprees. She was treated with 1250 mg of valproic acid, 600 mg quetiapine and 3 mg of lorazepam. When she was discharged 4 weeks after admission, she showed no manic symptoms. Our diagnostic impressions on discharge were bipolar I disorder most recent episode manic, with catatonic and psychotic feature by DSM-IV-TR, and also definite KS by definition of Peralta et al [10].

Discussion

Catatonia has been long defined mainly as a subtype of schizophrenia and its association with other conditions has been ignored [5, 11]. This misconception does not recognize the catatonia's common nature, decreases its detection in other psychiatric illnesses, and restricts treatment to antipsychotic drugs [12].

However, recent studies noted that in addition to schizophrenia, catatonia was associated with mood disorder, organic brain, metabolic disorder, and drug induced syndromes [6, 9, 11]. Taylor et al [9] also reported that more than half of catatonic patients have manic-depressive illness and that 25% or more of manic patients have enough catatonic features to meet the DSM criteria. Kahlbaum, who first described catatonia, observed that most catatonic episodes were preceded by episodes of depression and mania [9]. He reported two special conditions in which the diagnosis can be made with almost total certainty from a cross-sectional point of view. The first condition is a depressive state that develops catatonic features, and the second is a manic state with abnormal motor behavior [10].

Kahlbaum regarded catatonia as an independent clinical entity, and since his time this view has been mainly sustained

by the Wernicke-Kleist-Leonhard school of psychiatry [10]. More recently, some authors advocating clinical and therapeutic reasons have proposed to consider catatonia as a discrete clinical entity [10, 12].

Peralta et al [10] held the original sense of Kahlbaum's concept and defined catatonia resulted from affective disorder as KS: A definite KS was defined as 1) current presence of catatonic features, and 2) current or previous presence of both a depressive and a manic syndrome. A probable KS was defined as 1) current presence of catatonic features, and 2) current or previous presence of either a manic or a depressive syndrome [10].

They reported that patients with KS differed from those with schizophrenia and mood disorder across a number of variables, although differences were greater with the former than with the latter group: Catatonia patients differed from schizophrenia and mood disorder patients as they were older at index admission, predominantly women, married, more years of evolution, more often treatment with ECT and stronger genetic liability. They also insisted that KS did not appear to fit any particular nosological category according to DSM-IV and minority of patients with KS could be classified as affective psychoses (mood and schizoaffective disorders) in DSM-IV systems. Therefore, from a nosological point of view, they hypothesized that catatonia represents a "third psychosis" lying between typical schizophrenia and mood disorder.

Catatonia has been long misdiagnosed mainly as schizophrenia-related syndrome and, accordingly, mistreated with antipsychotic drugs [5, 11]. As emphasized in this case, even in the presence of psychotic symptoms, antipsychotic drugs should be used with great caution in patients with catatonia. Catatonia has been associated with a higher risk of NMS after treatment with antipsychotics. We presented the case of a 57-year-old woman with KS who suddenly progressed to NMS, with severe rigidity, hyperthermia, and laboratory abnormalities, in relation to the administration of intramuscular olanzapine.

According to lethality, Taylor et al [9] suggested three catatonia subtypes (nonmalignant, delirious, and malignant). The nonmalignant form may be referred to as the Kahlbaum syndrome. It responds to lorazepam (6 – 20 mg/day). The delirious forms require high doses of lorazepam for relief, respond best to ECT, and are typically made worse by antipsychotic drugs. The malignant forms require life-supportive measures, treatment of fever and dehydration, and high doses of a benzodiazepine; ECT may be required if medication does not quickly resolve the condition.

Whether KS is a subtype of mood disorder or an independent entity, as Kahlbaum believed, Kahlbaum's catatonia concept (which we call KS) seems to facilitate treatment planning. For example, ECT would be a treatment of choice for both catatonia and mood symptoms in KS [9]. If medication were added as the catatonia resolved, mood stabilizers or antidepressants would be the first choices [9]. However, antidepressant in KS with mania should be avoided because of risk of manic switching. We think that in our case, despite definite KS, antidepressant and antipsychotic treatment is the one of the leading causes of continuous relapse and poor response. Catatonia secondary to other disorders, such as a general medical, a neurologic, or a psychotic disorder, warrants other interventions [9]. In conclusion, our findings suggest that the recognition of a KS is the main point to prevent NMS.

Conflict of Interest

The author declares no conflict of interest.

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