Brief report

Second generation antipsychotics causing neuroleptic malignant syndrome

C Suraweera, R Hanwella, V de Silva

Abstract

Neuroleptic malignant syndrome (NMS) is a rare yet potentially lethal medical emergency encountered by psychiatrists. NMS is commonly associated with potent first generation antipsychotics, especially haloperidol and fluphenazine. However, there are many case reports of NMS caused by treatment with second generation antipsychotics (SGA). Mortality from NMS caused by SGA may be less and the presentation may also be different. The article discusses two case reports of neuroleptic malignant syndrome caused by SGA both of which have some unusual features.

Key words: Neuroleptic malignant syndrome, first generation antipsychotics, second generation antipsychotics

SL J Psychiatry 2016; 7(2): 20-22

Introduction

Neuroleptic malignant syndrome (NMS) was first described in 1960 by Delay and was formally known as 'akinetic hypertonic syndrome' (1). NMS is primarily a diagnosis of exclusion as none of the symptoms of NMS are diagnostic. Table 1 outlines the DSM 5 criteria for diagnosis of NMS. Although, the prevalence of NMS is around 0.4-1.4%, the potential lethal outcome requires high levels of vigilance (2).

Abrupt and profound dopamine D2 receptor blockade by antipsychotics in the nigrostriatal system is postulated to be the reason for clinical manifestations of NMS. Although first generation antipsychotics (FGA) are mostly implicated, second generation antipsychotics (SGA) including newer medications like ziprasidone, aripiprazole, paliperidone, asenapine (3) and intra-muscular risperidone can also cause NMS. Genetic susceptibility and other neurotransmitter abnormalities may increase the risk. High-potency FGA, recent or rapid dose increase, rapid dose reduction, abrupt withdrawal of anticholinergics, psychosis, organic brain disease, alcoholism, Parkinson's disease, hyperthyroidism, psychomotor agitation, mental retardation, dehydration and high ambient temperatures are some of the other predisposing factors.

The four classical symptoms of NMS are fever, rigidity, autonomic disturbances and elevated creatinine phosphokinase (CPK). However, the presentation could be atypical with no fever, rigidity or elevation of CPK and therefore atypical NMS remains a problematic entity (4). According to available reviews the entity of atypical NMS can be diagnosed when there are three of the four cardinal signs of NMS which are fever, rigidity, autonomic disturbances and elevated CPK (5). The atypical presentation can be seen mostly with SGA. Some atypical features observed are: extremely elevated serum sodium, absence of rigidity, normal CPK, generalised tonic-clonic seizures preceding NMS, anterograde amnesia and deficits in learning verbal information (6).

We describe two patients with atypical NMS caused by treatment with SGA.

Case 1

This was a 68-year old female who had schizophrenia for 40 years and a more recent diagnosis of dementia for one year. She was on chlorpromazine 75 mg and was compliant with treatment. She developed suspiciousness and irritability over 10 days with psychotic symptoms. As attempts to increase the dose of chlorpromazine resulted in extra pyramidal side effects (EPSE), she was started on olanzapine 10mg daily. Olanzapine was increased to 20mg daily over 7 days. After 12 days of initiation of olanzapine, the patient developed generalised rigidity and sweating. By the following day the clinical condition worsened, with development of fever spikes, fluctuation of blood pressure, delirium with a white blood cells count of $10.8\times10^3/\mu l$ and a neutrophilia of 82%. Computed tomography (CT) scan of brain, electro encephalogram (EEG) and lumber puncture revealed no abnormality. Blood and urine culture yielded no growth. The CPK levels were 850U/l, 576U/l and 32U/l respectively on day 6, 9 and 14 following development of rigidity and sweating. Lorazepam 4mg three times a day and bromocriptine 7.5 mg a day was commenced on day 6 of illness and she was completely well on day 14.