CASE REPORT ON STEROID INDUCED PSYCHOSIS

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ABSTRACT
Steroid have been variety of adverse drug reaction such as diabetes, hypertension, peptic ulcers, osteoporosis, weight gain and glaucoma are well known. Despite some well-known side effects, the association of psychiatric disorders with the use of these drugs has not been well established and documented. We describe a case of a 24-year old female with a diagnosis of SLE, who has psychotic symptoms which appear to be induced by steroids. Psychiatric symptoms emerged after steroid therapy and diagnosis of steroid-induced psychosis was made by two different causality scales. After discontinuation of steroid therapy, psychiatric symptoms did not improve. But after four weeks of risperidone treatment, he recovered completely. This article reviews case report of steroid induced psychosis and its risk factors. Female sex, past psychiatric history, prednisone dose of more than 40 mg/day and long-term administration are considered to be the major risk factors for steroid psychosis. Length of treatment, time of day treatment is given, type of corticosteroid preparation used, route, dose used, and dosing interval are also be the risk factors. So physician should consider this fact before prescribing steroid doses and emphasize the need for guidelines regarding steroid utilization.

KEYWORDS: Adverse drug reaction, psychosis, SLE, steroids.

INTRODUCTION
Steroids have been widely used and prescribed for a variety of systemic disease such as systemic lupus erythematos, allergic reaction, inflammatory bowel disease, hepatitis, asthma etc. The reactions in response to the administration of synthetic corticosteroids such as prednisolone and triamcinolone can include dermatologic conditions, peptic ulcer formation, osteoporosis, cataracts, immune suppression weight gain, endocrine disturbances, glaucoma,
and electrolyte imbalance hyperglycemia, and Cushing’s syndrome.[1, 2] Treatment with corticosteroids has been associated with adverse psychological effects.

However, psychiatric adverse effects are uncommon during the systemic steroid administration. Corticosteroid use can cause a variety of psychiatric syndromes, including mania, psychosis, depression and delirium.[3] A meta-analysis reports severe psychotic reactions in 5.7% of patients taking corticosteroids and mild-to-moderate reactions in 28% of patients.[4] Hypo-mania, mania, and psychosis are the most common psychiatric reactions to acute corticosteroid therapy.[5] This article reviews case report of steroid induced psychosis and its risk factors. And also outlines treatment options of steroid induced psychosis. The incidence of diagnosable psychiatric disorders due to steroid therapy is reported to be 3-6%, but more patients suffer from mild symptoms which do not fulfil any diagnosis.[6] There is no clear mechanism model to explain steroid induced psychiatric disorder, but the dose of the steroid administered has a clear relationship with patients’ likelihood of developing a subsequent steroid psychosis.

OBJECTIVE
We describe a case of substance-induced psychotic disorder resulting from corticosteroids administration.

CASE PRESENTATION
A 24 year old female patient with no previous psychiatric history who was diagnosed with steroid induced psychosis, presented with fever, seizure, vomiting, agitation and blurred vision. She was known case of systemic lupus erythematos with haemolytic anaemia for past 10 years. She had sudden onset of seizure and admitted to the hospital, discharged with treatment of prednisolone (1mg/kg o.d), HCQ (400 mg, O.D) and losartan (50mg b. d) after a few days. She was apparently normal for 1 month. Suddenly presented with compliance of fever, seizure, vomiting, agitation and blurred vision. Her weight was 65kg. There was no history of loss of weight and loss of appetite. She was diagnosed with systemic lupus erythromatous, haemolytic anemia, septic shock and steroid psychosis. She unexpectedly became anxious, agitated, and sleepless and again readmitted to the hospital. On the following day she was disoriented, restless and not co-operative. Upon hospitalization she refused to take medication and preferred to be isolated. She also experienced with hallucinination, seeing devils in the wall. Laboratory indication showed Hb level 8g/dl, leukocyte count of 29100/mm³ and polymorphs 96 %. Sodium, potassium, urea, creatinine,
were found to be increased on day to day laboratory investigation. In cerebrospinal fluid, glucose and protein were found to be elevated. There was no significant personal or family psychiatric history. On examination shows neck stiffness, tachypnea, pallor and crepts. ECG and CT scan were unremarkable, except Full Blood Count results which were consistent with his diagnosis of all. X-ray was showed with cardiac tamponade or pericardial effusion. Her cranial magnetic resonance imaging (MRI) and electroencephalography (EEG) were also normal.

A diagnosis of steroid-induced depression with psychotic symptoms was made according to DSM-IV-TR criteria (5). We preferred to stop the steroid treatment on hospitalization but his symptoms did not improve. He was put on risperidone 2 mg daily. After a week, she was relieved from her symptoms and his thought form and content were normal with no evidence of psychosis. Eventually, his psychotic findings like agitation and visual hallucinations also completely disappeared. The patient recovered fully at the end of the month. Therefore, risperidone treatment was discontinued and thereafter, no more psychotic drugs were needed.

**DISCUSSION**

The risk factors associated with ADR includes, use of drug considered to be inappropriate, number of diagnosis and number of administered drugs (7). Female patients are at higher risk of corticosteroid-induced psychosis, even after one controls for medical conditions diagnosed more often in women, such as SLE and rheumatoid arthritis. The incidence of psychiatric reactions to corticosteroid treatment according to the underlying medical conditions to be treated is not significantly higher than the expected one in ulcerative colitis, rheumatoid arthritis and lymphoma. However, patients with SLE do have a higher incidence of corticosteroid-induced psychiatric symptoms (8). In the Boston Collaborative Drug Surveillance Study, it was reported that in patients treated with a mean daily dose of prednisone below 40 mg/day, the incidence of psychotic symptoms was 1.3%, while in patients treated with doses more than 80 mg/day of prednisone or its equivalent, the incidence of steroid psychosis was 18.4% (9).

Female sex, past psychiatric history, prednisone dose of more than 40 mg/day and long-term administration are considered to be the major risk factors for steroid psychosis. In our case, two of these risk factors - female gender, over 40mg/day prednisone (steroid treatment) were present. Number of diagnosis also is to be major risk factor in our case. Length of treatment, time of day treatment is given, type of corticosteroid preparation used, route, dose used, and
dosing interval are also be the risk factors. Secretion of adrenocorticotropic hormone and atrophy of the adrenal gland become progressively more definite as doses of corticosteroid exceed physiological amounts and as the duration of therapy increases more than 3 weeks. It is less when the corticosteroid is given as a single dose in the morning, and even less if this morning dose is given on alternate days or less frequently.[8, 9]

Steroid psychosis often occurs from a few days to two weeks after administration of this agent. Although our patient had been receiving prednisone before past 7 years for a period of 3 years, she had not developed any psychiatric manifestations. When she experienced psychiatric symptoms, her albumin level was 1.6 g/dl and she had significant proteinuria. The explanation for this may be that synthetic steroids bind to serum albumin, at which point they are inactive. Therefore, higher levels of free and active fraction of steroids along with low plasma albumin levels will expose the patient to more adverse effects.[10] Interestingly, the incidence of psychosis in nephrologic patients is higher than other groups of patients treated with steroids (for example, those with chronic obstructive pulmonary disease).[11] Thus, those patients with disease causing low levels of serum proteins (as in those with nephritic syndrome) would be predisposed to experience more adverse effects with steroids. Our case had normal serum albumin level (3 g/dl) with normal renal function in the period without psychiatric signs/symptoms.

First-line treatment for corticosteroid-induced psychosis is to taper or discontinue corticosteroid therapy. If this is not possible because of co-morbid disease or severe psychosis, consider adding low-dose atypical antipsychotics in patients with manic or hypomanic symptoms. Consider mood stabilizers such as lithium or valproic acid as second-line treatment in patients with normal renal function.[12] In several reports, lithium.[13] and antipsychotics including haloperidol.[14] chlorpromazine.[15] and risperidone.[16, 17] were offered for the treatment of steroid-induced psychosis in adults.

In this patient she was taking risperidone for the steroid induced psychosis. In this case prednisolone is the major cause for steroid induced psychosis although our patient was not re-challenged prednisolone, the signs and symptoms of this patient most consistent with prednisolone induced psychosis. The causality assessment of psychosis with prednisolone using Naranjo causality assessment scale showed a score of 7. WHO-Upsala monitoring centre causality assessment criteria also indicated a probable association with prednisolone.
CONCLUSION
It was found that female gender, over 1 g prednisone, steroid treatment and multiple number of diagnosis are more prone to get steroid induced psychosis. Length of treatment, time of day treatment is given, type of corticosteroid preparation used, route, dose used, and dosing interval are also be the risk factors. So physician should consider this fact before prescribing steroid doses and emphasize the need for guidelines regarding steroid utilization.

REFERENCE

