

## Steroid Dementia Syndrome; A rare Clinical diagnosis

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### Abstract:

Psychotropic effects of corticosteroids were reported in 1950. Patients treated with high doses of corticosteroids developing dementia-like cognitive changes were identified in 1984. Steroids have adverse effects such as immunosuppression, hypertension, and hyperglycemia, inhibition of wound repair, osteoporosis, metabolic disturbances and glaucoma. It also has psychiatric or side effects on central nervous system, as catatonia, dementia, decreased concentration, agitation, altered sensorium, insomnia, and abnormal behaviors. The aim of this review is to highlight the correlation between the administration of corticosteroids and dementia, giving a useful guide for prescribers including a more careful assessment of risk factors and encourage the use of safer doses.

**Keywords:** steroid; dementia; hormone; mania

### Introduction

Steroid hormones released from the adrenal cortex [1]. Approximately 20% of patients receiving high doses of corticosteroids develop psychiatric disorders that include depression, mania, and psychosis [2]. Steroid Dementia presentation mimics Alzheimer's disease presentation. The dementia with steroid use is usually reversible. The risk for steroid induced psychosis increases at higher dosages, but no clear dose-response relationship has been established [3]. We present to you a case report of a woman having rheumatoid Arthritis Diabetes and suffering from Steroid Dementia.

### Case Presentation

A 57 year old female with past medical history of rheumatoid arthritis, hypertension and iatrogenic Cushing's syndrome presented to clinic with forgetfulness and inability to perform activities of daily living for 1 month. These complaints started gradually with trouble remembering phone numbers, names of the relatives and word finding difficulties. Symptoms persisted throughout the day and got worse over time to the point where patient had trouble maintaining bank account, difficulty in bathing and getting lost in the neighborhood. There is no history of trauma, fall, altered consciousness, visual or auditory hallucinations and behavior changes. Patient denied urinary incontinence, headache, seizures and gait problems. Past medical history is significant for Rheumatoid Arthritis for the past 15 years for which patient had been on multiple medications including DMARDS (Disease Modifying Ant rheumatic Drugs) and steroids due to which she developed Iatrogenic Cushing syndrome which was diagnosed 3 years back. Due to affordability issues she declined biologics in the past. Multiple trials of weaning patient off the steroids have been unsuccessful due to flare of rheumatoid arthritis and currently she takes 60 mg/day of prednisone and 30 mg/week methotrexate. There is no family history of dementia or other neurocognitive disorders. Review of system was positive for occasional

shortness of breath, abdominal striae, multiple joint stiffness and fatigue. Patient is a retired teacher, married with 3 children. She is a nonsmoker and nonalcoholic. On examination patient had typical cushingoid features with fat deposition on face and supraclavicular pad area. Conjunctiva was pale. Swan neck deformities were noted in both hands. On neurological exam patient was oriented to time, place and person. Cranial nerves were grossly intact. The patient's motor strength was 3/5 bilaterally in her upper and lower extremities. Tinel's sign was positive bilaterally. Sensations including fine touch, pain, vibration, and proprioception were intact. The patient's response to the Babinski reflex test was normal. She scored 21/30 on MMSE (Mini Mental State Examination) with impaired recall, repetition, attention and calculation. Cardiovascular, Respiratory and Gastrointestinal exam was unremarkable. TSH (Thyroid Stimulating Hormone) and Vitamin B12 levels were normal. Due to lack of other focal neurological findings in history and physical examination, diagnosis of steroid induced dementia was made. It was decided to lower the dose of prednisone and she was prescribed Imipramine due to its role in treating steroid induced dementia.

### Discussion:

The patient presented here developed a dementia with confusion as a result of being administered high dosage steroids for Rheumatoid Arthritis. The case is very similar to those reported by Varney, Alexander and MacIndoe in that the steroid dementia was not associated with any evidence of steroid psychosis [4]. Benton and Okuno found cerebral atrophy following steroid therapy [5]. Usually all patients who are treated with corticosteroids are at higher risk for developing mental disturbances than those who are not [6]. This patient developed steroid dementia after taking high dose steroid for her rheumatoid arthritis. A set of psychiatric symptoms is attributed to prolonged treatment or high-dose corticosteroids, catatonia was assessed with muscle stiffness, insomnia, and abnormal behaviors such as silence and no body movement.

## Conclusion:

Corticosteroid use is widely spread considering the broad spectrum of clinical indications. Neuropsychiatric effects are under-estimated and therefore it is not always possible to identify the effective dose. It is impossible to say what the incidence of steroid dementia is likely to be. At the same time, this particularly severe case of steroid dementia underscores the need for medical professionals to be aware of the risk for the occurrence of such disorders. Severe cases of steroid dementia can be misdiagnosed and that other, less severe cases, have gone totally undetected. So physicians should keep steroid dementia in mind.

## Declaration:

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