

EXOGENOUS CUSHING'S SYNDROMESamreen Thabassum*¹ and Dr. Nikhil Kumar Vanjari²¹Pharm D, Department of Clinical Pharmacy, Vaageswari College of Pharmacy, Karimnagar, Telanagana.²Pharm D, Clinical Assistant Professor, Department of Clinical Pharmacy, Vaageswari College of Pharmacy, Karimnagar, Telanagana.***Corresponding Author: Samreen Thabassum**

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ABSTRACT

Chronic use of steroids have serious side effects. Cushing syndrome is one of them. Here is a case of 50 years old female who has a history of joint pains associated with morning stiffness and is on medications Prednisolone 10 mg daily and Aceclofenac 200 mg BID since 2 years. Patient claimed to have vomiting, diarrhea 5 days ago now relieved. Complaints of fever low grade associated with chills and rigors since 10 days. Facial puffiness since 2 months, SOB grade – III since 15 days, edema over legs.

KEYWORDS: Cushing syndrome, prednisolone, steroids, glucocorticoids.**INTRODUCTION**

The glucocorticoids were first used for therapeutic purpose in 1948 in case of severe Rheumatoid Arthritis. Immediately however, the potential adverse effects of exogenous steroid administration became evident.^[1] Cushing's syndrome (CS) is the state of hypercortisolism that results from endogenous or exogenous glucocorticoid excess. It is associated with increased morbidity and mortality from musculoskeletal, metabolic, thrombotic, infectious and cardiovascular complications.^[2,3] Cushing's syndrome resulting from exogenous glucocorticoids now is a well recognized and documented entity.^[4] Iatrogenic (exogenous) Cushing's syndrome is the most frequently observed form of hypercortisolism in the clinical practice.^[5]

Clinical Presentation

The clinical presentation of Cushing's syndrome varies, in part related to the extent and duration of cortisol excess. When hypercortisolism is severe, its signs and symptoms are unmistakable. In particular, proximal muscle weakness, wasting of the extremities with increased fat in the abdomen, torso and face, and wide purple striae, suggest marked hypercortisolism. However, most of the signs and symptoms of Cushing's syndrome are common in the general population, and not all are present in every patient. As a result, patients with mild or cyclic disease may not present in the more classical way. Because of the variety in presentation, patients are often referred to subspecialists for complaints that are gynecologic (oligomenorrhea, hirsutism, infertility), dermatologic (red facial skin, poor wound healing, striae, acne), orthopedic/rheumatologic (fractures, low bone mineral density), metabolic

(hypertension, diabetes, dyslipidemia), infectious (community acquired and infections seen with immunosuppression,^[6] cardiovascular (stroke, myocardial infarction, pulmonary embolism,^[7] neurologic (decreased strength, headaches, decreased memory and cognition), psychiatric (depression, anxiety, mood change), and nonspecific (fatigue, backache, and weight gain). Because of this, early detection may not occur unless the specialist considers other features not related to the referral question. It is important to screen for the associated comorbidities in patients with the disorder. Newer tests such as cardiac MRI (to study structure/function) and CT (to evaluate atherosclerosis) may be useful in the future but have not yet been validated fully.^[8,9] The common laboratory findings in Cushing syndrome includes lack of response to an ACTH stimulation test, low ACTH level, elevated fasting blood sugar level, decreased serum potassium level, lower bone density, increased blood cholesterol levels etc.

Diagnosis

The American Endocrine Society Clinical Guidelines (2008) recommends one of the four following tests for the initial screening of CS: two measurements of urinary-free cortisol (UFC), two measurements of late night salivary cortisol (LNSC), 1 mg overnight dexamethasone suppression test (ODST) or a longer low-dose dexamethasone suppression test (LDDST) with 2 mg/day in divided doses for 48 hours.^[10]

Treatment

Treatment is done by slowly tapering the dose of corticosteroid as the sudden stoppage may result in

adrenal crisis. Slowly tapering the dose of steroid that is causing Cushing's syndrome can help reverse the effect of adrenal gland hypertrophy.^[11]

Issues affecting withdrawal from steroid therapy:

The discontinuation of steroid therapy can present a significant clinical challenge. Three issues exist with regard to withdrawal from steroid therapy:

- (1) the possibility of suppression of the hypothalamic–pituitary–adrenal (HPA) axis and resulting secondary adrenal insufficiency,
- (2) the possibility of worsening of the underlying disease for which steroid therapy was initiated, and
- (3) A phenomenon, sometimes called the steroid withdrawal syndrome, in which some patients encounter difficulty, and even significant symptoms, discontinuing or decreasing steroid doses despite having demonstrably normal HPA axes.

CASE STUDY

A female patient of age 50 years was hospitalized and her chief complaints were facial puffiness since 2 months, shortness of breath since 15 days, swelling over limbs (edema), complaints of low grade fever associated with chills and rigors since 10 days. She is a known case of rheumatoid arthritis and associated morning stiffness since 2 years and on regular treatment with prednisolone 10 mg daily and aceclofenac 200mg BID. The patient was conscious and well oriented to time and place but on physical appearance was looking weak, pale and her vitals were as follows BP – 130/80 mm Hg, PR – 78 bpm, CVS – S1S2 (+)ve, RS – BAE (+)ve, B/L basal crepts (+)ve, pedal edema (+)ve, pallor (+)ve. The laboratory investigations shows that the patients had decreased serum potassium levels (2.9 mmol/L), elevated serum urea (51 mg/dL), elevated serum creatinine (1.8 mg/dL), MRI Brain revealed diffuse cerebral atrophy with small vessel ischemic changes. other laboratory findings were, reduced platelet count (77,000 cells μ l of blood), increased ESR (75 mm/1st hr).

So based on subjective and objective evidence, the patient is provisionally diagnosed as having Drug induced Cushing syndrome (due to the chronic use of prednisolone.) & viral pyrexia with thrombocytopenia.

The patient was treated with torsemide (for edema), calcium supplements, potassium chloride syrup (for hypokalemia), analgesics and anti ulcer agents. Prednisolone dose was tapered and during follow up reduction in signs and symptoms was seen. Based on this evidence the patient was finally diagnosed as drug induced or exogenous Cushing's syndrome due to chronic use of prednisolone.

DISCUSSION

Physiologically, the hypothalamus secretes corticotropin releasing hormone (CRH), which stimulates the release of adrenocorticotrophic hormone (ACTH) from the pituitary gland. ACTH leads to the release of cortisol

through stimulation of the adrenal cortex, which in turn has a negative feedback on CRH and ACTH. Administration of exogenous corticosteroids, even in small doses for only few days, leads to a measurable suppression of the HPA-axis resulting in the inability of the adrenal cortex to secrete additional cortisol if needed.^[12] Patients with Cushing's syndrome symptoms due to GC therapy are more likely to have a suppressed HPA axis and adrenal atrophy.^[13]

CONCLUSION

Corticosteroids are useful drugs, if prescribed for an evidence-based indication; but if used irrationally, troublesome adverse effects may be noted. Patient/caretaker should be thoroughly informed about the potential risk associated with its long term use and the symptoms of steroid induced illness. Patient should undergo regular medical checkups to assess the effects of steroid in the body

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