

## Iatrogenic cushing syndrome: A neglected aspect of medical care

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### Received:

13th November 2016

### Accepted:

19th May 2017

### Abstract

**Aim:** To document that the impact of sufferings from Iatrogenic Cushing syndrome in patients is beyond the preceding disease, so much that they forget about original disease sufferings.

**Background:** Lack of knowledge and easy accessibility over the counter or otherwise leading to indiscriminate or illegal use of corticosteroids in chronically ill patients with prolonged ailments is destructive and needs to be addressed. The judicious use of this life saving medicine needs to be emphasized.

**Material & Methods:** The study was carried out over a span of 1 year i.e. From July 2015 to June 2016 in Department of Medicine Unit-II, JPMC. We enrolled 40 patients with diagnosis of Cushing Syndrome which is based on clinical presentation.

**Result:** Indiscriminate use of steroids has resulted in a serious situation and highly dangerous for these patients already harboring a chronic devastating disease and confirmed by laboratory.

**Conclusion:** We are documenting one of the common iatrogenic complication that is mostly irreversible and leading to disability.

**Keywords:** Iatrogenic Cushing Syndrome, cortisol; corticosteroids; neglected aspect, Moon shaped facies

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### Introduction:

Corticosteroids; also known as glucocorticoids or steroids are hormone secreted by Adrenal gland (Cortex). They are essential for normal homeostasis and affect all the body parts. Any derangement of normal secretion can lead to disease and especially when used in excess may cause Cushing Syndrome (CS).

The indications for using steroids are unlimited and include inflammatory, hematological, dermatological, ophthalmological and neoplastic etc conditions. They are especially required in those illnesses which have a prolonged course.

The first therapeutic use of glucocorticoids in 1948 resulted in dramatic clinical improvement

in a patient with severe RA. Almost immediately, however, potential adverse effects of exogenous steroid administration started becoming evident soon.

Cushing's syndrome is a complex disorder which is generally rare, but not anymore, and common all over the world as in our part of the world. This is due to excessive use of exogenous corticosteroids which is increasing in occurrence as more potent steroids are being marketed even in the form of eye drops, inhalers and topical ointments.<sup>2</sup> Although these non systemic steroids are usually safe. It is known that steroids even in this form are also absorbed systemically and at higher doses / potency can cause CS., especially when used for longer periods. This is com-

Table 1: The 40 patients with advanced C.S had the following preceding illness

Diseases	No. of Patients	Percentage
Rheumatoid Arthritis	23	57.5%
SLE	5	12.5%
COPD /Asthma	5	12.5%
Psoriasis	1	2.5%
COPD(Chronic Obstructive Pulmonary Disease	4	10.0%
Osteoarthritis	2	.5%

Table 1: demographic data of our patients (n=40)

Diseases	No. of Patients
Age (in Years)	32 ±
Gender (M/F)	M-29 (72%) F- 11 (27.5%)
Height (cm)	155cm
Weight (Kg)	67 Kg
BMI	29
Systolic BP	160 mmHg
Diastolic BP	94 mmHg
Hemoglobin	11.5g%

pounded by the fact that these drugs are easily available over the counter.

In Cushing Disease, which is the most common cause of intrinsic Cushing Syndrome, a pituitary micro adenoma releases adrenocorticotrophic hormone (ACTH), which in turn leads to steroid excess. The non-pituitary causes of ACTH secretions are even less common. Adrenal adenoma is also considered significant for causing Cushing Syndrome.<sup>3</sup>

One of the reasons for indiscriminate cortical use or otherwise abuse is that they are cheap, readily available and give a prompt response. Other reasons include high patient demand, physician incompetency, and large number of quacks who practice medicine illegally. The excess use of steroids in the form of anabolic steroids in recent time has been misused for body building and athletes generally ends up with CS.<sup>4</sup> The Exogenous ACTH is also one of the reasons for the development of CS/OS. Cushing Syndrome, is classically known for its central obesity, appearance of dorsocervical pad, classic moon face, hypertension, purple red striae over abdomen and thighs, osteoporosis, gastritis, hypokalemia, glucose intolerance, hypertension and proximal myopathy etc.<sup>5</sup>

There are two conditions which closely mimic the Iatrogenic Cushing Syndrome one is Polycystic Ovarian Syndrome and other patients with metabolic syndrome. These different entities have or different course of disease. It is important to differentiate these disorders It is confirmed by 24 hour urinary free cortisol > 100 ug, Dexamethasone suppression test which measures 24 h plasma and urinary cortisol; increased cortisol means C.S or otherwise C.D. There is unlimited number of tests

Available for C.S and CD. X-ray lumbar spine, bone densitometry, Ultrasound abdomen etc are supportive tests.

Treatment is mostly surgical and with Ketoconazole aminoglutethimide for endogenous CS Treatment is symptomatic for conditions like HT, DM, and Osteoporosis. Surgical treatment by removing pituitary, adrenal or ectopic tumors location remain the key option.<sup>6,7</sup>

#### Material & Method:

Patients admitted were suffering from life threatening conditions.

Treatment is very difficult and almost irreversible with patients who are bedridden with pathological fractures, advanced osteoporosis, hypertension, skin changes, and body fat distribution in grossly obese patient. Those patients who were admitted in Ward-6 Jinnah Postgraduate Medical Centre during the last 12 months with clinical impression of Iatrogenic Cushing Syndrome with underlying chronic ailments. Here, almost in every case reason of admission is Cushing Syndrome.

- All patients underwent tests for determination of fasting cortisol level and 24 hours urinary cortisol level.
- History and clinical examination was performed and information was obtained about intake of cortisol, duration of use, dose, type and route of cortisol use. Only those with cortisol level less than 15 mcg/dl were included.

Table : Clinical Features dominant in CS

	No. of Patients	Percentage
Buffalo hump	32	80%
Moon face	22	55%
Echymosis Bruises	21	51%
Stria Nigricans	9	23%
Hypertension	4	10%
Hyperglycemia	7	18%
Cataract	2	5%
Osteoporosis	17	44%

All data was attached and analyzed according to the pre-structured protocol (demographic and anthropometric profile were also recorded).

A total of 40 patients with Cushing Syndrome were included in the study. All had iatrogenic Cushing Syndrome and all the patients had underlying severe, chronic ailments (Table.1). Detailed demographic data is on Table 2.

#### Results:

There were 3 types of patients who were with cortisol (intrinsic steroid), those who had S. cortisol < 5, one of the groups had > 1 and another group had > 15.

#### Discussion:

The present study documents the occurrence of iatrogenic Cushing Syndrome is not rare and is mostly seen in patients suffering from chronic and severely painful conditions. Common conditions associated are arthritis, skin allergies, and respiratory diseases like Chronic Obstructive Pulmonary Disease/asthma. Connective tissue disorders, neoplasms etc. Herbal and natural products with steroids are another most common the reason since they are having quicker effect, cheap and available over the counter. Patients suffering from any of the above diseases use these indiscriminately without taking advice from or even informing their physicians as they are known for their quicker effect at cheaper price.<sup>8</sup>

Iatrogenic Cushing Syndrome is the most common cause of Cushing Syndrome in the clinical practice; to Cushing Syndrome very rarely in-

trinsic causes have extremely rare presentations.

Commonest presentations include moon like face (80%), buffalo hump (>75%), osteoporosis 45%, obesity (90%).

There are some variations in the presentation. Theoretically hypertension and hyperkalemia are more common with steroids having less mineralcorticoid activity.

Potential dangers of sudden withdrawal may include reactivation of parent disease as well as secondary adrenal insufficiency which can continue for months. Similarly in stressful conditions there is a need of increased dose of steroid to combat stress which if not associated with Iatrogenic Cushing Syndrome can cause acute adrenal insufficiency

Iatrogenic Cushing Syndrome is not uncommon in situations. In recent times, with indiscriminate use of steroids. Steroids even in the form of topical preparations, inhalation, eye and ear drops can lead to Cushing Syndrome with common presentation.<sup>9</sup>

The occurrence of Iatrogenic Cushing Syndrome is neither related to the type dose or duration of steroid intake nor if it is related to the route. It is generally in its clinical practice dose and by type of disorder that the patient is suffering from for prolonged period.<sup>10,11</sup>

#### Conclusion:

Iatrogenic Cushing Syndrome is not rare in our part of the world where over the counter availability and indiscriminate use of steroids is rampant. It is very important that the use and availability of steroids should be repeated with proper dosage schedule and maximum effort should be made to prevent their irrational and indiscriminate use, as problems usually occur at higher doses or with the use for prolonged duration.

It is not uncommon that patient present with glaring features of Cushing Syndrome and deny any allopathic medicine, or in them a lot of herbal medicine or natural medicine used by quacks

or non professional people lead to large proportion of people Cushing Syndrome.

**Acknowledgement:**

Muhammad Moazzam Khan (Advisor World Wild Life) who is very generous and always my mentor and source of inspiration.

**Conflict of interest:** None

**Funding source:** None

**Role and contribution of authors:**

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