



RESEARCH ARTICLE

ACUTE ADRENAL INSUFFICIENCY AFTER CORTICOSTEROID THERAPY TO GAIN WEIGHT CASE REPORT

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Abstract

Obesity is considered a sign of beauty in some regions, especially in southern Morocco and some sub-Saharan countries, the use of glucocorticoids to gain weight is a common practice among women in these regions. We report the case of a female patient who presented with acute adrenal insufficiency after long term exogenous administration of steroids to gain weight

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Introduction:-

Obesity is considered a sign of beauty in some regions, obsessed by the idea of gaining weight, some women consume glucocorticoids, we report the case of a female patient from southern Morocco admitted for acute adrenal insufficiency after exogenous administration of steroids to gain weight

Case Report :

27 years female patient , without any notable pathological history, who presents since 1 month a physical and psychic asthenia worsening during the day with a dizzy sensation. the patient was hospitalized because of incoercible vomiting and low blood pressure.

The questioning of the patient revealed that she had been taking corticosteroids to gain weight in the form of traditionally prepared suppositories containing dexamethasone. This intake lasted for several years with a rapid withdrawal one month ago.

The clinical examination reveals an obesity with a BMI of 36kg/m², an abdominal obesity of 102cm, BP: 09/05cmHg with orthostatic hypotension, a puffy and rounded aspect of the face, a buffalo hump and large and purple abdominal stretch marks evoking a cushing syndrome (figure 1 and 2)

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* **Figure 1:-** buffalo hump of cushing syndrome.



Figure 2:- Abdominal obesity with large purple stretch marks giving a cushing appearance.

The diagnosis of acute adrenal insufficiency was evoked in this clinical context. After sampling for serum cortisol, the patient was put in emergency under intravenous hydrocortisone bolus and rehydration

The diagnosis was confirmed by a low cortisol level of 2ug/dl (5-18ug/dl), the blood ionogram was normal, we find a moderate fasting hyperglycemia at 1.23g/l, hypertriglyceridemia at 2.80g/l, abdominal ultrasound showed liver steatosis

The patient was put on glucocorticoid replacement regimen by hydrocortisone 20mg in two oral doses per day,. The ADDISONIAN card was also given to the patient to specify, she must never stop her hydrocortisone treatment, double the dose in case of infection or stress, good hydration (fasting forbidden) with a normosodic diet, make an injection of 100mg hydrocortisone if vomiting, diarrhea or dehydration or coma or surgery.

The patient was reviewed after 3 months, the morning serum cortisol level was still low at 3ug/dl, then reviewed at 9 months with the morning serum cortisol level still low at 2ug/d, the patient was kept on glucocorticoid replacement regimen

Discussion:-

Synthetic corticosteroids are widely used therapeutic means for chronic inflammatory conditions.

Prolonged corticosteroid therapy exposes the patient to the risk of adrenal insufficiency due to the slowing down of the hypothalamic-pituitary-adrenal axis which controls the secretion of endogenous cortisol.

Corticosteroids are considered the most frequent cause of secondary adrenal insufficiency. The inhibition of the corticotropic axis induced by glucocorticoids is related to their negative feedback action on both the pituitary and the hypothalamus. Glucocorticoids inhibit hypothalamic CRH synthesis, in particular by reducing its messenger ribonucleic acid. They also inhibit the release of hypothalamic CRH into the hypothalamic-pituitary portal system. In the pituitary gland, glucocorticoids inhibit the synthesis and secretion of ACTH by the corticotropic cell. The expression of the gene for the peptide precursor of ACTH (pro-opio-melanocortin) is inhibited by cortisol. (1)

Apart from therapeutic indications corticosteroids are also used by women obsessed with gaining weight and having curves, they usually consume dexamethasone in the form of oral tablets or suppositories mixed with traditional plants

Dexamethasone is sold clandestinely without prescriptions in several cities, especially in the south of Morocco, and is widely sold on internet sites and social networks (figure 3)



Figure 3:- Traditional herbal and dexamethasone suppository.

This exogenous administration of steroids leads to chronic intoxication by corticosteroids used in a long-term and uncontrolled manner, giving a clinical Cushing's syndrome contrasting with a biological adrenal insufficiency(3)

Corticosteroids should only be prescribed for well-defined indications and with strict precautions to avoid adverse effects. Use without medical supervision exposes patients to adverse effects. There is a redistribution of fatty tissue that settles on the trunk and the face giving a cushinoid appearance. This obesity is accompanied by pathologies that can be serious and sometimes irreversible.

Corticosteroids can induce or aggravate diabetes. They increase insulin resistance, increase hepatic gluconeogenesis and glycogen synthesis through lipolysis and proteolysis and also decrease insulin secretion (4). They also increase the risk of hypertension (5).Cushing's disease is associated with dyslipidemia attributed to hypercorticism (6). As in our patient's case, long-term use of corticosteroids had caused a moderate fasting hyperglycemia and hypertriglyceridemia

Corticosteroids induce secondary osteoporosis and increase the risk of fracture, particularly at the vertebral level (7)

These multiple risk factors suggest an increased cardiovascular risk. Population studies have confirmed a marked increase in the risk of heart attack, stroke and cardiovascular mortality for doses >7.5 mg/day in prednisone equivalents taken over the long term (8)

When discontinuing corticosteroid therapy, it is necessary to consider the possibility of corticotropic insufficiency, especially after corticosteroid therapy greater than 20 mg/d of prednisone equivalent for at least 3 weeks. A patient who has developed clinical Cushing's syndrome on corticosteroid therapy should be considered at particular risk of developing corticotropic deficiency when the therapy is stopped. (1) as in the case of our patient who had taken dexamethasone for years and then stopped it abruptly without degression with a clinical cushing syndrome.

Dexamethasone is the strongest corticoid in the corticosteroid family, its potency is about 26 times that of cortisol which explains the important blockage of the corticotropic axis (9) as in the case of our patient who kept a low cortisol level even at 9 months after its discontinuation, this adrenal insufficiency risks to be definitive and the patient should keep her hydrocortisone replacement treatment for life. The patient should also be educated never to stop her treatment because of the risk of acute adrenal insufficiency which can threaten the vital prognosis.

Interest in raising women's awareness of the dangers of corticosteroids and their side effects and limiting access to these products in pharmacies and parallel markets and developing an information and education strategy to reduce demand among young girls.

Conclusion:-

The use of corticosteroids to gain weight is a frequent practice among women in southern Morocco, and this practice can expose them to a vital risk by adrenal insufficiency. The alarm bell must be rung on the risks of self-medication and on the illicit sale of corticoids.

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Author Contributions:

All authors conceptualized and wrote the paper, revised the text; and all approved the final manuscript.

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