CUSHING'S SYNDROME-A CASE REPORT

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Abstract:

Introduction: Cushing syndrome is a rare disorder which might result from a prolonged exposure to glucocorticoids. It reflects the physical and mental changes that happens in the body having too much of cortisol in the blood for a long period of time. Cushing's syndrome, is of two types exogenous and endogenous. The signs and symptoms include weight gain especially in the upper body, high blood sugar, hypertension, depression, too much facial hair, libido**. Case Presentation**: The patient was admitted with the chief complaints of nausea, decreased appetite, recurrent vomiting's and loose motions, burning micturition, dysuria, knee joint pain and generalized weakness since 15 days. Based on the clinical presentations and laboratory investigations the patient was diagnosed with hypothyroidism and Cushing syndrome. **Conclusion:** The treatment of Cushing's syndrome depends on the cause. Symptomatic treatment has to be given. If not treated it may lead to complications like cardiovascular risk, obesity, high lipid profile, hypertension, diabetes, etc.

Key words: Glucocorticoids, Cushing syndrome, hypothyroidism, depression.

Introduction:

Cushing syndrome is a rare disorder caused by the prolonged exposure to excess glucocorticoids and is responsible for increased morbidity and mortality from musculoskeletal, metabolic, infectious, thrombotic and cardiovascular complications [1]. CS is a state of hypercortisolism that results from endogenous and exogenous glucocorticoid excess. It is a rare disorder with an annual incidence of 2-3 cases/ million population. The female**:** male ratio is 3**:**1 [2]. The clinical presentations of CS are influenced by age, gender, severity and duration of disease. General clinical features include obesity, moon face, buffalo hump, hirsutism, facial plethora, ache, menstrual irregularity, decreased libido, neuropsychiatric symptoms, muscle weakness, decreased linear growth in children, hypertension, glucose intolerance, hyperlipidemia, nephrolithiasis etc. [3]. Some of the clinical features may be sensitive for the diagnosis of CS, they may not be specific for the disease. Few patients may present with fluctuating symptoms and signs due to rhythmic variation in cortisol secretions that results in a state of cyclical CS. [7,8]. Diagnosis include 24UFC measurement, Overnight Dexamethasone Suppression Test (ODST), Low Dose Dexamethasone Suppression Test (LDDST), Late Night Salivary Cortisol (LNSC) test ,17 ketosteroid's estimation. Surgical resection of the source of glucocorticoid excess (pituitary adenoma, non-pituitary tumor secreting ACTH or adrenal tumor's) is the first line treatment for all types of Cushing syndrome [5]. Trans-sphenoidal Surgery, Bilateral Adrenalectomy, Pituitary Radiotherapy can also be done. Medical treatment for Hypercortisolemia include agents that inhibits steroidogenesis, modulate ACTH release or block glucocorticoid action at its receptor [12].

Case report:

A 55-year-old female patient was admitted in the hospital with chief complaints of nausea, decreased appetite, recurrent vomitings and loose motions after taking any solid or liquid diet, burning micturition, dysuria, keen joint pain and generalized weakness in the past 15 days. Patient was hospitalized with similar complaints one month back and recovered. Again, she developed symptoms and admitted for further evaluation. The patient is a known case of hypertension, type 2 diabetes mellitus, hypothyroidism, bronchitis and Cushing syndrome. On day 1, the patient was given with Tab. Telmisartan 40mg once daily, Tab Glimepiride 1mg + Metformin 500mg twice daily, Tab. Levothyroxine 100mcg once daily. Patient was obese and had the habit of chewing pan. On examination blood pressure was 160/100mmHg, pulse rate 98/min. Laboratory investigations include 17-ketosteroids-15.2mg/day, total volume 4000mg/day which confirms the presence of Cushing's syndrome, increased levels of T4, HBA1C-7.3%, pus cells in urine were observed. On day-2, the patient was treated with

Inj. Pantoprazole 40mg IV Once daily, Inj. Ondansetron 4mg IV thrice daily, Tab Cilnidipine 10mg SOS, Tab Alprazolam 0.5mg P/O Bed time, Tab. Pregabalin 75mg twice daily, Tab. Cabergoline along with past medications. The patient was discharged after recovery and was advised to review after 10 days.

Discussion:

Cushing's syndrome is a metabolic disorder, characterized by repeated episodes cortisol excess interspersed by periods of normal cortisol secretion and this cycles of hypercortisolism may occur regularly or irregularly with inter cyclic phases ranging from days to years [4,7,8]. The differentiation between the pathological hypercortisolemia of endogenous Cushing's syndrome and that associated with pregnancy, glucocorticoid resistance, and pseudo Cushing's states like severe obesity, depression, alcoholism, anorexia nervosa, and bulimia is important. The hypercortisolism of pseudo-Cushing's states is found to be mediated via increased hypothalamic secretion of CRH. Hypothalamic CRH is suppressed in true Cushing's Syndrome in contrast. Biochemical tests in this disease are based on the cardinal features of increased endogenous secretion of cortisol, loss of normal feedback of the hypothalamic- pituitary – adrenal axis, loss of the normal cortisol circadian rhythm. According to the 2018 Endocrine society guidelines, the following tests must be used for diagnosis of Cushing's syndrome; 24-hour urinary free cortisol (UFC), late-night salivary cortisol, and/or a low dose dexamethasone-suppression test (DST; 1mg overnight or 2 mg/day over 48 hours). None of these tests has 100% diagnostic accuracy; each test has its own caveats, and multiple tests are to be done usually to establish the diagnosis.[5] Clinical manifestations include obesity, moon face, buffalo hump, hirsutism, facial plethora, ache, menstrual irregularity, decreased libido, neuropsychiatric symptoms, muscle weakness, decreased linear growth in children, hypertension, glucose intolerance, hyperlipidemia, nephrolithiasis etc. Surgical resection of the source of glucocorticoid excess (pituitary adenoma, non-pituitary tumor secreting ACTH or adrenal tumor's) is the first line treatment for all types of Cushing syndrome [5]. 60-80% is the initial remission rate after transsphenoidal surgery (<15% in macroadenomas) with a relapse rate of Cushing syndrome up to 20 % within 10 years. [9,10,11]. Transsphenoidal Surgery, Bilateral Adrenalectomy, Pituitary Radiotherapy can also be done. Medical control of hypercortisolemia may be indicate in occult cases, while waiting for surgery, when surgery is contraindicated or unsuccessful and while awaiting the effect of radiation treatment.[5]. Medical treatment for Hypercortisolemia include agents that inhibits steroidogenesis Ex. Ketoconazole, metyrapone, mitotane and etomidate, agents that modulate ACTH release ex. Somatostatin and dopamine agonists or block glucocorticoid action at its receptor ex. mifepristone [12]. Proopiomelanocortin transcription factors have been evaluated for their ability to reduce ACTH production and normalize cortisol. These includes somatostatin analog Ex. cabergoline. The efficacy of cabergoline improves when given in combination with ketoconazole. Other medication includes Metyrapone 500-6000mg/day, Ketoconazole 200mg twice daily, Etomidate 2.5-3mg/hour.

CONCLUSION:

Cushing's syndrome is a rare disorder associated with significant mortality and morbidity. The establishing diagnosis can be difficult as the clinical presentations are broad. Early recognition and rapid control of hypercortisolism is necessary to decrease mortality and morbidity in these patients. Individualized medical treatment and multidisciplinary approach are needed for the optimal control of hypercortisolemia and management of comorbidities.

ABBREVATIONS:

CS- Cushing Syndrome

CRH- Corticotropin-Releasing Hormone

UFC- Urinary Free Cortisol

ACTH- Adrenocorticotropic Hormone

DST- Dexamethasone-Suppression Test

CONFLICT OF INTEREST:

Declared none.

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