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RESEARCH ARTICLE

HYPERCORTISOLISM.

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Abstract

Cushing Syndrome is a disorder that occurs when your body makes too much of the hormone cortisol over a long period of time.Cortisol is sometimes called the " stress hormone" because it helps your body respond to stress. Cortisolalso helps to maintain blood pressure, regulate blood glucose, reduce inflammation and boost energy.It is a rare condition with potentially serious complications if it is untreated.It remains one of the most challenging endocrine pathologies.

Introduction:-

Case history:

Mrs.Poovathal, 70years who admitted in a private hospital with anasarca, weight loss,insomnia,polyuria and bilateral leg swelling . She is a known case of diabetic mellitus ,endocrine hypertension, hypothyroidism and osteoarthritis. On the day of admission , she was conscious and oriented. Her BP was 150/80 mmof Hg. Investigations reveals that increased urine albumin & urine creatinine, increased platelets, increased serum cortisol & prolactin level, irregular blood sugar values and mild PAH on ECHO report. She was underwent ONDST (Overnight Dexamethasone Suppression Test) and treated by diuretics, antidiabetics, calcium , urinary alkalatives, antihypertensives.

Brief history:

Cushing's syndrome was first described by American neurosurgeon Harvey Cushing in 1932.It may also occur in other animals including cats,dogs and horses

Incidence :

1. Ranging from about 40 to 70 people out of every million
2. Most often affects adults, usually aged 30 to 50 , can occur in children
3. Three times as many women as men
4. People who have type 2 diabetes and too high over time of blood glucose levels and BP.
5. People who take glucocorticoids drug

Causes :

1. Excess cortisol secretion , not depend on stimulation from ACTH , associated with disorders of the adrenal glands.

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2. Non cancerous tumor of the adrenal cortex
3. Long term , high -dose use of the cortisol to treat asthma, rheumatiod arthritis and lupus, it may suppress the immune system
4. Inherited disorders such as multiple endocrine neoplasia type 1 and carney complex

Differences Between Cushings: Syndrome And Cushing Disease

Cushings syndrome : Symptoms associated with excess cortisol in the body , regardless of the cause.

Cushing disease : Caused by a pituitary gland tumor that over-secrets the hormone ACTH, thus overstimulating the adrenal glands' cortisol production

Types of cushing's syndrome :

1. Exogenous (Iatrogenic cushing's syndrome) - Use of glucocorticoids in treatment of a variety diseases.Adrenal glands may often gradually atrophy due to lack of stimulation of ACTH .
2. Endogenous - Derangement of the body's own system of cortisol secretion.Benign pituitary adenoma secretes ACTH interms of high cortisol secretion. Tumours outside the normal pituitary-adrenal system can produce ACTH that affects the adrenal glands. Rare CRH- secreting tumors stimulates pituitary ACTH production
3. Pseudo- Cushing'syndrome - Estrogen can cause an increase of cortisol-binding globulin , thereby elevation of total cortisol levels

Symptoms of cushing's syndrome :

1. weight gain
2. thin arms and legs
3. a round face
4. increased fat around the base of the neck
5. a fatty hump between the shoulders
6. easy bruising
7. wide purple stretch marks, mainly on the abdomen, breasts, hips and under the arms
8. weak muscles
9. irregular mensus
10. impotence in men, infertility in women
11. abdominal obesity
12. headache
13. chronic feeling of tiredness
14. excessive sweating , dilation of capillaries
15. hirsutism,baldness
16. hypocalcemia
17. superficial fungus ,acene face
18. impaired wound healing ,GI disturbances
19. osteoporosis
20. cerebral atrophy, personality changes

Diagnostic evaluations :

1. Urine and blood tests - Measure cortisol levels (>110 mcg/ day) whether the body is producing excessive cortisol
2. Late night Salivary cortisol test- measure cortisol in saliva in the late evening
3. Imaging tests-CT/MRI
4. Petrosal sinus sampling- blood sample taken from petrosal sinuses - veins that drain the pituitary, blood sample away from pituitary. Higher levels of ACTH in the blood from the petrosal sinuses than from the other blood vessel indicate a pituitary tumor. Similar levels of ACTH in all the blood samples suggest an ectopic tumor.
5. LDDST (Low Dose Dexamethasone Suppression Test) - Dexamethasone every 6 hours for 48 hours. Blood is drawn 6 hours after the last dose
6. Dexamethasone- CRH test- CRH tells the pituitary to make ACTH , which in turn tells the adrenals to make cortisol.When cortisol levels rise enough , they turn off the CRH signal , so ACTH and cortisol levels fall.
7. CRH (Corticotrophin Releasing Hormone) stimulation test- rarely in people with ectopic tumors
8. HDDST (High Dose Dexamethasone Suppression Test) - Higher dose of dexamethasone , probably have a pituitary tumor, if not drop in levels suspected as ectopic tumor

9. Scintigraphy of the adrenal gland with iodocholestrol scan.

Treatment:
1. It depends on the cause and may include surgery, radiation, chemotherapy or cortisol-reducing medicines.
2. Surgical removal of pituitary adenoma with replacement by hydrocortisone
3. Mifepristone drug - powerful glucocorticoid type II receptor antagonist

Complications:
1. heart attack and stroke
2. blood clots in the legs and lungsinfections
3. bone loss and fractures
4. high blood pressure
5. unhealthy cholestrol
6. depression or other mood changes
7. memory loss or trouble concentrating
8. insulin resistance and prediabetics
9. type2 diabetics

Health tips to reduce the cortisol level:
1. Start with diet. Avoid sugary, starchy foods
2. Increasing sleep with six to eight hours each night
3. Force yourself to relax
4. Limit alcohol intake
5. Exercise
6. Get a monthly massage to reduce stress and relax muscles

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