CASE REPORT

RARE CASE OF IATROGENIC PAN HYPOPITUITARISM

Saraswathi Susarla, Mohammed Kunhi, Kishore Kumar and Praveen Shetty

*Department of General Medicine, Yeneopya Medical College and Hospital
Kodialbail, Mangalore - 575003, Karnataka State.*

ABSTRACT

Excess glucocorticoids exert feedback suppression on hypothalamus and pituitary, thereby the release of CRH and ACTH are suppressed which results in bilateral adrenal cortical atrophy, at the same time patient is having features of iatrogenic Cushing syndrome.

The interesting part of this case is excess glucocorticoids have exerted cross feedback suppression on hypothalamus and pituitary resulting in suppression of release of GHRH, GH and LHRH, LH and FSH also from hypothalamus and pituitary thereby resulting in growth retardation as well as hypogonadotropic hypogonadism. Combination of feedback and cross feedback effect of excess glucocorticoids are seen in one patient which is an interesting part of the case.

CASE REPORT

A 20 years old boy is admitted for puffiness of the face, increase in weight, pain in the hip joint along with short stature and delayed puberty. It was revealed that the patient was admitted to a hospital at the age of 5 years, for joint pains and was diagnosed to have rheumatoid arthritis. The patient was then put on 30-40mg prednisolone per day, for a period of one month and asked to come back. Thereafter the patient and the relatives whenever they are asked to stop the medication the symptoms became worst, in addition to weakness

and vomiting. So despite the advice of the doctors to taper and stop the steroids, on their own they used to go to the pharmacy and buy the medicine themselves and continued to take 20 to 40 mg prednisolone daily, till the day he has come to our hospital i.e. from the age of 5 years to 20 years. But the patient's relatives noticed that child is not growing like his siblings. On examination patient has symptoms of Cushing Syndrome in the form of moon face, buffalo hump, obesity, hypertension, osteonecrosis of the hip joint in addition to growth

Hormone Profile (Ranbaxy Laboratories)

ACTH	< 10	Range 0.0 to 37 pg/ml
Cortisol	4.7	Range AM 5 to 25 µg/dl
Growth Hormone	0.23	0.00 to 7 ng/ml
FSH	1.6	1.0-12.0 mIU/ml
LH	< 1	2 to 12 mIU/ml
TSH(RIA)	0.93	0.40 to 5 µIU/ml
T3	87	86 to 187 ng/dl

Author for Correspondence :

Dr. Saraswathi Susarla
Department of General Medicine,
Yeneopya Medical College and Hospital
Kodialbail, Mangalore - 575003, Karnataka State.

T4	4.6	4.5 to 12.5 ng/dl
Testosterone Total	<20	245 to 1826 µg/dl
Free Testosterone	0.3	12.40 to 40 pg/ml
Testosterone Total	<20	L 245.0 – 1836. 0 ng/dl

retardation and absence of secondary sex characters with infantile penis and testis.

Investigations: Routine investigations are normal excepting osteonecrosis of the right hip joint.

DISCUSSION

1. Excess glucocorticoids suppress CRH and ACTH release which is evident from the low ACTH level at the same time patient is having Cushing's features. This is the result of feedback mechanism
2. Cross feedback effect of excess glucocorticoids is seen in the form of low growth hormone level due to suppression of GHRH and GH release from hypothalamus and pituitary¹
3. Excess glucocorticoids increase hepatic synthesis of somatostatin secretion thereby GH secretion is suppressed.¹ This may contribute to growth arrest observed in children with Cushing's Syndrome.
4. Excess glucocorticoids exerted cross feedback suppression on LHRH from hypothalamus and LH and FSH from the

pituitary resulting in hypogonadotrophic hypogonadism². This effect is profound in children as seen in this patient

5. Excess glucocorticoids act directly on the Leydig Cells of testis, there by decreasing the Testosterone concentration³.
6. Excess glucocorticoids exert by cross feedback mechanism inhibition of TSH release from the pituitary⁴. This patient is having low normal TSH
7. Excess glucocorticoids inhibit peripheral conversion of thyroxine. Total thyroxine level is low because of decreased TSH and TBG but free thyroxine concentration is normal. Clinically thyroid function is normal⁴

Excess glucocorticoids administered during growing age of life, by its feedback and cross feedback mechanism resulted in iatrogenic Cushing's Syndrome with growth retardation as well as hypogonadotrophic hypogonadism. Since all the features are seen in one individual which could have been averted by patient education, made this case interesting to report.

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