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INTRODUCTION

- Endogenous Cushing's syndrome (CS) is a nonphysiological hypercortisolism state which causes a reversible state of immunosuppression. Autoimmune diseases have improved during the active phase of CS whereas there is a risk of worsening of the same conditions upon remission.
- CS may alter the performance of the hypothalamic-hypophyseal-thyroid axis in several ways as well [6]. In this study we attempted to establish whether there is a relationship between hypercortisolism and primary thyroid disorders with the focus on patients with autoimmune features.

METHODS

- The medical records of 40 patients with Cushing's syndrome (CS) admitted to our endocrine unit from 2006 to 2013 were retrospectively examined.
- Pre-surgical records of thyroid ultrasonography (USG), basal serum levels of thyroid stimulating hormone, circulating free thyroxine, free triiodothyronine, antithyroglobulin (anti-Tg) and antithyropoxidase (anti-TPO) antibodies were analyzed. When available, data on thyroid function tests (TFTs) and autoantibody panel 6 months after surgery were also evaluated.
- Diagnosis of hypercortisolism had been established by an overnight low dose dexamethasone suppression test and urinary free cortisol (UFC) measured in 24-h samples. Etiological diagnosis was made by 8 mg dexamethasone suppression test, measurement of ACTH levels and imaging techniques.
- After treatment, all patients were cured which was established by the finding of subnormal serum cortisol concentrations and/or subnormal 24-h UFC levels. In 40 control subjects, matched by age and gender with CS patients, thyroid USG, TFTs and autoantibody panel were obtained.

RESULTS

- Six patients (15%) and 7 controls (17.5%) had positive anti-Tg and/or anti-TPO titre at study entry, while 2 out of 25 patients (8%) developed positive anti-Tg and/or anti-TPO titre after disease cure ($P>0.05$).
- Sixteen patients with CS and 8 controls had nodular goiter (40 vs 20%, $P<0.05$).
- Regarding TFTs, one patient (2.5%) had subclinical hyperthyroidism and one (2.5%) had subclinical hypothyroidism whereas one control (2.5%) had hyperthyroidism.
- Twenty-one patients (52.5%) and 8 controls (20%) had one or more of the features of thyroid disorder which are goiter, positive thyroid autoantibody and thyroid function abnormality and the difference was significant ($P=0.026$).

	Group 1A (n=40)	Group 1B (n=25)	Group 2 (n=40)	(P) Group 1A vs. 2	(P) Group 1B vs. 2	(P) Group 1A vs. 1B
Serum TSH	1.3±1.2	1.6±1.2	2.2±1.3	< 0.01	0.06	0.223
Serum FT3	3.1±0.8	3±0.8	3.4±0.7	0.09	0.035	0.814
Serum FT4	1.2±0.3	1.2±0.4	1.3±0.2	0.4	0.442	0.646
Anti-Tg Positivity (%)	4 (10)	4 (16)	3 (7.5)	0.692	0.253	0.371
Anti-TPO Positivity (%)	4 (10)	5 (20)	5 (12.5)	0.723	0.322	0.221
Antibody Positivity (%)	6 (15)	7 (28)	7 (17.5)	0.762	0.244	0.169

Group 1A: Pretreatment Cushing Syndrome patients
Group 1B: Posttreatment Cushing Syndrome patients
Group 2: Control patients

CONCLUSION

- There is a remarkably high prevalence of primary thyroid disorders in patients with CS but thyroid autoimmunity is not more frequent even during the resolution period of hypercortisolism.