Low serum levels of Dehydroepiandrosterone-Sulfate (DHEA-S) in patients affected by severe forms of Alopecia Areata

Introduction

Basic and clinical research suggest that disturbed neuroendocrine function may be involved in the pathogenesis and course of autoimmune diseases. Hormons, such as those of Hypothalamo-Pituitary-Adrenal Axis (HPA) are known to operate a modulation of Immune Response (1). In this right we looked into the basal serum levels of 4 hormones: Testosterone, ACTH, Cortisol, Dehydroepiandrosterone Sulphate (the stable metabolite of the active steroid DHEA) by means of RIA method, to investigate if it could be a gross HPA axis perturbation in severe cases of Alopecia Areata disease (involved in 10% of scalp (2)),(3) as it appears in other autoimmune diseases, such as in rheumatoid arthritis, systemic lupus erythematosus, Sjögren disease (2) and Hashimoto’s Thyroiditis (3), the last one is often associated to Alopecia Areata (4).

Casistic

We studied a total of 120 patients: 55 Males and 65 Females, average age 34 y, all in systemic or topical steroid therapy. They are all members of the “Associazione Mediterranea Alopecia Aretica” (www.alopecia-italy.com). The sample of patients has been divided into 3 groups: 1) Patients in active phase of disease with disease duration from 10 months (6m) -5y; 2) Patients in stationary phase with disease duration from 5 months (6m) -5y; 3) Patients with active phase of a new onset of a disease, with disease duration from 25 months (6m) -5y.

Results

We confirmed the almost normal value of Prolactin level (5) and we have found a slight increment of basal level of ACTH and Cortisol (fig.1,2), but DHEA-S is the majority of the patients was found very significantly reduced in comparison to age and sex matched controls: 69.1% of Males (M) and 74.7% of Females (F) (by the average of the control values: 165.80 ± 98.69 mcg/dl (M) and 101.36 ± 97.22 mcg/dl (F) versus 228.07 ± 151.8 mcg/dl (M-control) and 134.49 ± 104.64 mcg/dl (F-control).

To summarize

Some results of the integration with DHEA (100-200 mg/d) to previously unsuccessful topical Clobetasol protocol (11)

Comments -1-

On the other hand DHEA is a neurohormone with adrenergic - anxiolytic activity and low DHEA-S secretion is considered indicative of endogenous glucocorticoids involvement in the pathogenesis of AA is to be considered (10). Our study showed that the level of Prolactin (5) was within the normal range, but Cortisol and ACTH levels were very significantly increased. DHEA-S levels were very significantly reduced in all the patients groups. Serum levels of DHEA-S were very significantly lower in females than in males in the whole samples and in males and females in the groups of active phase of disease respectively. 63.6% of M and 64.4% of F are in the range of deficiency levels - given by mean minus 2σ (177.47 mcg/dl for M and 106.45 mcg/dl for F) – irrespective of their age, clinical forms and duration of the disease.

References