

of the T-8 suppressor lymphocyte subpopulation has been described together with other disturbances in cellular immunity (5, 8, 9, 10), while in AIDS the defect of T<sub>4</sub> cells is obvious.

Apart from theoretical considerations the question of IgE production, atopic disease and AIDS could gain practical importance with regard to the possible risk of allergic reactions to vaccines or xenogeneic proteins (e.g. monoclonal antibodies) used for therapy.

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## Serum Testosterone and Sex Hormone Binding Globulin Levels in Women with Androgenetic Alopecia

G. GEORGALA, V. PAPANOTIRIOU and P. STAVROPOULOS

*The University of Athens, School of Medicine, Department of Dermatology, Andreas Syngros Hospital, Athens, Greece*

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Serum levels of testosterone and sex hormone binding globulin (SHBG) were assessed in eight women suffering from male pattern alopecia. Eight healthy women of similar age served as controls. A statistically non-significant increase was observed in serum testosterone levels as compared with those of the controls ( $p > 0.1$ ). On the other hand, a statistically significant fall was observed in serum SHBG levels as compared with those of the controls ( $p < 0.001$ ). (Received February 19, 1986.)

S. Georgala, Department of Dermatology, Andreas Syngros Hospital, 5 Dragoumi Street - Kesariani, 161 21 Athens, Greece.

Though the increased availability of potent androgens at the hair follicles is traditionally regarded as an essential prerequisite for the development of male-pattern alopecia (1), the etiology of this condition and the exact role of androgens in its pathogenesis still remain obscure.

Theoretically, an increased androgen availability may be due to alterations in the metabolism of androgens at the end organ resulting in an enhanced formation of potent metabolites or alternatively to an excess of circulating androgens. The aim of the present study was to explore the second possibility in a group of female patients suffering from androgenetic alopecia in an attempt to define the relationship between this disorder and the androgen status.

## MATERIAL AND METHODS

Eight female patients (age  $22 \pm 3.8$  years) with male-pattern alopecia, type III (2), participated in the study. One of the patients (patient 3) also revealed hirsutism of moderate severity predominantly affecting the face. Eight healthy women (age  $24 \pm 3.2$ ), similar to that of the patients, with no history or evidence of alopecia, severe acne or hirsutism served as controls. A peripheral vein blood sample was taken from each patient and control between 8 and 10 o'clock in the morning.

Serum testosterone was assayed in patients and controls by radioimmunoassay after extraction of the samples with diethylether. Tritiated testosterone used as tracer was obtained from Amersham Interim, England. We used an antisera prepared in rabbit against testosterone-17 $\beta$  hemisuccinate-BSA by Bionalytica Athens, Greece, with a titer of 1/30 000 and presenting a 40% cross reaction with dihydrotestosterone. Separation of bound from free fraction was performed by dextran-coated charcoal.

The sensitivity of the method was 0.1 ng/ml and the intra-assay interassay coefficients of variation 6.5% and 7.0% respectively. SHBG was assayed by an IRMA method (Farmos Diagnostica). The sensitivity of the method was 0.5 nmol/l and the intra-assay and interassay coefficients of variations 5% and 6.5% respectively. Statistical analysis of the results was performed using the Student's *t*-test.

## RESULTS

The results of the determination of serum testosterone and sex hormone binding globulin levels in patients and controls are summarized in Table I. Serum testosterone concentration was not significantly increased in the patients ( $0.98 \pm 0.58$  ng/ml;  $\bar{x} \pm SD$ ), as compared with the controls  $0.56 \pm 0.26$  ng/ml;  $\bar{x} \pm SD$ ) ( $p < 0.1$ ). On the contrary, serum sex hormone binding globulin concentration revealed a marked and statistically significant ( $p < 0.001$ ) decrease in the patients ( $16.20 \pm 7.70$  nmol/l;  $\bar{x} \pm SD$ ).

## DISCUSSION

The statistically significant decrease in the serum sex hormone binding globulin levels in the group of patients with androgenetic alopecia implies an increase in the free, non-

Table I. Serum testosterone and sex hormone binding globulin (SHBG) concentration in patients and controls

N	Testosterone (ng/ml)		SHBG (nmol/l)	
	Patients	Controls	Patients	Controls
1	0.95	0.82	20.00	42.00
2	0.40	0.73	8.20	52.00
3	2.20	0.55	7.00	65.00
4	0.60	1.00	17.00	35.00
5	0.50	0.35	10.50	40.00
6	0.90	0.45	30.50	82.00
7	0.90	0.35	20.00	73.60
8	1.40	0.25	16.50	56.70

protein-bound testosterone despite the presence of normal total testosterone concentrations. The hair follicles of the patients are therefore most probably exposed to the action of raised circulating metabolically available testosterone. Nevertheless, the question as to whether there is a causal relationship between the raised availability of testosterone at the hair follicles, as found in the present study, and the androgenetic alopecia developed in our patients, cannot be definitely answered at this juncture since in other disorders, which are also associated with a hyperandrogenetic state, such as severe acne and hirsutism (3, 4, 5), androgenetic alopecia is rather rarely observed.

It seems reasonable to suggest that if raised testosterone levels are indeed implicated in the pathogenesis of the latter, additional alterations in the density and/or functional state of androgen receptors in the intracellular binding of androgens, or in the metabolic activity of keratinocytes in the hair follicles of the scalp may be of essential importance.

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## Psoriasiform Napkin Dermatitis

HANNE BOJE RASMUSSEN, HANS HAGDRUP and HENNING SCHMIDT

*Department of Dermatology, Odense University Hospital, Odense, Denmark*

Boje Rasmussen H, Hagdrup H, Schmidt H. Psoriasiform napkin dermatitis. *Acta Derm Venereol (Stockh)* 1986; 66: 534-536.

A prognostic study of 18 patients with a diagnosis of psoriasiform napkin dermatitis was performed. The observation period had a duration of 7 to 15 years. Two patients developed psoriasis and two developed atopic dermatitis. *Key words: Psoriasiform napkin dermatitis, prognostic evaluation.* (Received May 26, 1986.)

H. Boje Rasmussen, Department of Dermatology, Odense University Hospital, DK-5000 Odense, Denmark.

Psoriasiform napkin dermatitis is a characteristic skin eruption known in the Danish and German literature as dermatitis psoriasiformis Jadassohn. The eruption is characterized by many features of psoriasis and has been interpreted as a manifestation of e.g. psoriasis, seborrheic dermatitis, candida infection of a disease *sui generis* affecting only babies.

The criteria for the establishment of the diagnosis is a psoriasiform rash in the diaper area most often surrounded by satellites of psoriasis-like papules. The rash may spread to the trunk, limbs and very often to the scalp and face.

The following investigation based on patients treated ten years ago, was undertaken to evaluate the course of an early infancy psoriasiform napkin dermatitis later in life.