

PRELIMINARY AND SHORT REPORT

ALOPECIA AREATA: PITUITARY FUNCTION ASSESSED BY ASSAY OF PITUITARY GONADOTROPIN IN URINE*

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Alopecia areata has been considered to be an endocrine disease by many authors. The cycles that it undergoes, the different prognosis for prepubertal and postpubertal patients, the complete remission achieved by many patients during pregnancy, and the more recent finding that injection of hydrocortisone into the lesions will produce regrowth of hair have all tended to lend a simple kind of support to the idea of endocrine etiology. Waisman and Kepler, however, found no gross clinical correlation between alopecia areata and endocrine function (1).

It has been remarkable that assay of endocrine function has never shown it to be abnormal in alopecia areata; indeed, the analysis of data on endocrine factors from large series of cases of alopecia areata has failed to demonstrate any significant deviation from normal values (1, 2). Estrogen, 17-ketosteroids, and corticoids in the urine have been found to be normal. The basal metabolic rate and values for protein-bound iodine as well as glucose tolerance and values for fasting blood sugar have been found to be within the usual limits of normal. In a total of 31 cases of alopecia areata from the literature in which roentgenograms of the head have been made, the sella turcica appeared normal (2). Strickler and Greenberg (3), on measuring the sella turcica in 33 cases of alopecia areata, have found three in which the measurements were abnormal. Because of the continuing interest in the endocrine influence on alopecia and because it is apparent that hormonal tides must affect the physiology of hair, it was felt that a study of pituitary function in this disease would be significant.

The assay for urinary gonadotropin is the only direct measure of a pituitary function. This hormone complex is not detected before puberty and shows a definite change with age subsequent to puberty. Men do not have a sharp rise in this hormone in the urine between the ages of 40 and 50 years, but women do show a sharp postmenopausal

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TABLE 1
Pituitary Gonadotropins in Alopecia Areata

Cases	Age, Year and Sex	Rat Units	Type of Alopecia Areata
1	5 M	"Toxic"	Recurrent nummular
2	12 F	0	Total
3	15 M	0	Total
4	19 F	10	Total
5	19 M	4	Total
6	21 M	25	Total
7	21 F	15	Slowly progressive
8	22 M	16	Total
9	27 M	27	Slowly progressive
10	33 F	13	Recurrent nummular
11	35 M	17	Recurrent nummular
12	38 F	26	Recurrent nummular
13	40 F	10	Recurrent nummular
14	42 M	0	Total
15	44 F	20	Recurrent nummular
16	46 F	55	Total
17	49 F	95	Total
18	52 F	75	Recurrent nummular
19	54 F	88	Recurrent nummular
20	55 M	48	Total
		23*	
21	69 F	31	Recurrent nummular

* One month after first assay.

increase. This is the only sex difference of significance.

METHODS

The alopecia areata in a series of cases taken at random was classified according to the time of onset and the amount of involvement of the scalp. When the alopecia was of recent duration or was characterized by recurrent episodes of localized alopecia, it was classed as "recurrent nummular." Continuous slowly progressive alopecia which had been present for more than 1 year without remission was termed "slowly progressive" alopecia. The final clinical category was total alopecia; this was used to describe patients without any hair on the scalp at the time of assay regardless of the time of onset of the clinical

problem. In all cases a 48-hour collection of urine was accomplished, and this was assayed for pituitary gonadotropins according to the method of Albert (4).*

RESULTS

A total of 21 patients were studied and for one patient, two assays were done.

All values for pituitary gonadotropins may be considered to fall within the normal range for the age and sex of the patient. These data are summarized in table 1. The negative values found in the prepubertal patients were entirely normal, and the low values for patients in the teens also were normal. As adulthood is reached, a reasonably consistent increase of hormone was noted with age, as is normal. Among the women more than 40 years old, the number of rat units varied from 10 to 95. No adequate explanation exists for the one man who had no pituitary gonadotropins in the 48-hour sample of urine. Presumably this was a normal variation. For the 55-year-old man who had two determinations 1 month apart, a 50 per cent change occurred in the urinary gonadotropin level. During this period the patient's clinical status was unchanged.

Thus no correlation could be found between the extent of alopecia areata and the level of the pituitary gonadotropin in the urine. As has been noted by all authors in the various series, the more serious cases tended to occur among the younger

patients. The pituitary gonadotropins were entirely normal in this age range. Among patients with total alopecia areata who were more than 30 years of age, no remarkable change was noted from normal values with the exception of one man, age 42 years, who excreted no gonadotropin.

It is impossible to interpret these results in any manner except as confirming the fact that pituitary function as measured by pituitary gonadotropin levels in the urine is entirely normal in patients with alopecia areata. The amount of pituitary gonadotropin in the urine in patients with alopecia areata rises with age exactly as it does in the urine of patients with normal hair growth.

SUMMARY

Pituitary function, as measured by the pituitary gonadotropin in urine in cases of alopecia areata, is entirely normal. No departures from the normal values of this hormone according to age and sex were observed.

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