

Acne in Pubertal Boys Undergoing Treatment with Androgens

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In the present study, the development of acne lesions was studied in boys deemed to be too tall, for which they were treated with injections of androgens. In a retrospective and a prospective group of pubertal boys, an increased incidence of acne was observed as a consequence of treatment with androgens. Key words: Acne potential; Increased body height; Triolandren.

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The effect of androgens on sebaceous glands is responsible for the development of adolescent acne (1). If androgens were to constitute a pathogenetic factor, this influence should also be seen in persons receiving systemic androgens. Boys who are taller than expected are treated with androgens for premature closure of epiphysal growth zones. This precipitates an early accelerated and intensified development of male puberty, and can therefore serve as a model for the influence of androgens on the pathogenesis of acne. The investigation of this influence was the purpose of the present study.

MATERIAL AND METHODS

Boys with an expected body height of more than 200 cm have been offered treatment with androgens. The growth prognosis is based on radiographs of the bones in hands and wrists (2), and *chronical* age and height at the time of the investigation (3). Androgens are given as 1 ml intramuscular injections at weekly intervals for 12 months (Triolandren, Ciba-Geigy). Triolandren: 1 ml: Testosteroni propionas 20 mg, testosteroni valer. 80 mg, testosteroni undecylen. 150 mg (aeq testosterone 173.8 mg).

Retrospective study

A retrospective study was made on 176 boys (mean age 14 years) evaluated for androgen treatment from 1975 to 1982. Ninety boys were treated with Triolandren, and 86 boys not fulfilling the inclusion criteria served as a control group. A questionnaire was sent to both groups in 1983. The treated subjects were asked about the presence of acne before, during and 12 months after the treatment. The controls were asked about the presence of acne at the first examination, during the following year and after 24 months. Acne grading of both groups: no acne, untreated acne, treated acne – topical and systemic. The questionnaire was returned by 83 treated patients (92%) and 58 control patients (68%).

Prospective study

A prospective study was made on 23 boys (mean age 14 years) treated with Triolandren. They were examined before and 3, 6, 12 and 24 months after the start of the 12-month treatment. The total number of acne lesions was counted on the face, on the back (including shoulders

and neck) and on the chest. The lesions were classified as *comedones* and *papules/papulopustules*.

RESULTS

Retrospective study

The results are shown in Table I. At the first examination and at the end of the study after 24 months, no difference in the prevalence of acne could be found between the two groups. After 12 months an increased acne incidence was found in the group treated with Triolandren, compared with the untreated controls.

Prospective study

Before androgen treatment, 3 patients had a minor comedoacne (30–50 comedones) and 2 patients had three to five papulopustules on the face. These lesions were not treated. During androgen therapy, acne lesions developed as shown in Fig. 1.

In 5 patients a serious papulopustular (more than 200 lesions) nodulocystic and cicatricial acne reaction developed on the face and on the trunk, in one patient progressing to acne fulminans. Only one of these patients had minor acne before treatment with androgens was started. Eight boys developed moderate acne (50–200 papulo-pustules), and 10 were free from acne lesions.

From the first androgen injection, acne lesions appeared after one week and up to 2 months. Most lesions disappeared in the first 2 months after the last Triolandren injection was given. At the last control, only one patient was receiving treatment for acne.

DISCUSSION

Adolescent acne is a multifactorial disease, involving genetic factors, age and sex hormones (1, 4). The precise mechanism is unknown. Androgens are a necessity, but most patients have a normal androgen level in serum (5). The amount of free

Table I. A retrospective study of acne lesions (%) in pubertal boys treated with androgens (Triolandren (T)) compared with an untreated control group (C)

	Treatment period 1 year, last control 2 years after first investigation		During		Last control	
	Before		T	C	T	C
	T	C				
No acne	66	69	24	47	37	42
Untreated acne	33	26	44	43	51	44
Treated acne	1	5	34	9	12	14

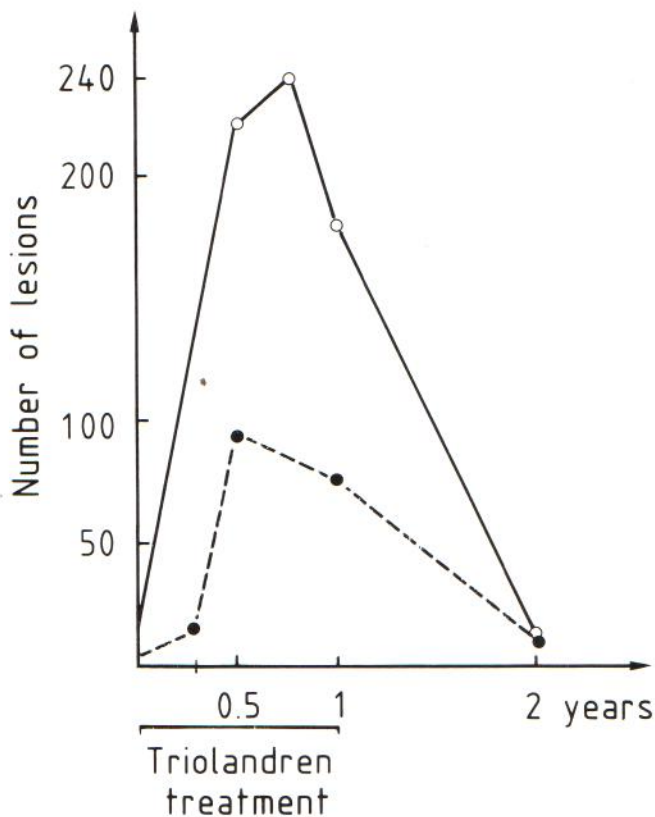


Fig. 1. Prospective study: development of acne (..., papulopustules; —, comedones) during treatment with androgens (Triolandren) in pubertal boys.

androgen in serum may be of importance (6), and a stronger enzymatic conversion to the more active dihydrotestosterone or an increased receptor sensitivity toward androgens in the skin is suggested (7).

The influence of androgens on the development of acne vulgaris can be studied by injecting androgens in humans, as in the treatment of increased height in pubertal boys. This treatment takes place at the onset of puberty before the ordinary development of male acne.

In this retrospective study we investigated the development of acne in boys treated with Triolandren, compared with an untreated control group. The data indicate an increased incidence of acne as a consequence of the androgen treatment, with no significant difference in the acne prevalence before vis-à-vis after treatment. Androgen treatment resulted in a more serious type of acne on the face and on the trunk, in

contrast to the predominantly facial acne in the control group. These differences are also reflected in the type of acne treatment given to these patients.

The retrospective study included data from 2 years' observation, during which the mean age of the groups increased from 14 to 16 years, the more acne-prone period in boys explaining the higher acne prevalence at the end of the study.

The results from the prospective study with groups investigated under controlled conditions confirm the findings of the retrospective study, in which the acne prevalence was low both before and after the androgen treatment. During the treatment period, acne lesions developed on both face and trunk, necessitating systemic and topical acne therapy in 52% of the boys. One boy developed acne fulminans, and 3 more cases of fulminant acne have been observed since this study was completed.

The present study supports the theory of the acne potential of androgen hormones in pubertal boys. This explains the beneficial effect of anti-androgenic drugs given systemically (8, 9) or topically (10), and emphasizes the need for future research into anti-androgens in the treatment of acne.

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