

Some aspects of Androgenic alopecia treatment

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Nowadays, trichology – the science of hair disease, becomes more and more popular. The methods of hair disease diagnostics became uniform. Trichoscopy is widely used together with general clinical methods. A wide range of pharmaceuticals, used for the treatment of different alopecia forms, points out the fact, that there is a definite complexity in the treatment of this pathology.

Among all nosological entities of alopecia, androgenetic is a special one. In the 40's of the 20 th century, doctor James Hamilton wrote, that the reason of hair loss can be an excess of testosterone in combination with genetic predisposition. In 1960 Norman Orentreich described causes and mechanisms of androgenic alopecia development in details. In 1988 he introduced a new definition – androgenic alopecia, by that he emphasized the role of genetic predisposition of hair follicle to androgen reaction. The majority of men and woman have this form and its frequency ranges from 70 till 90% according to different authors.

Primary there are two factors, which are of great importance in pathogenesis of androgenic alopecia (AGA): genetic and androgenic one. Genetic factor determines hypersensitivity of hair follicles receptors to androgens. The majority of AGA diseased people had a normal androgenic level in peripheral blood, but there is a metabolic imbalance of androgens in the scalp. First of all it is referred to level increase of 5 alpha-reductase ferment, which is found in human body in two types: the 1st type is in men's prostate gland, the 2nd one is in sebaceous glands and hair follicles. The main function of 5 alpha-reductase is to transform testosterone, circulating in blood, into an active form – dihydrotestosterone (DHT). Hair follicles are stimulated by estrogen and suppressed by androgens. DHT reduces growth phase of the hair follicle. They do not achieve maximum value, so that they began to produce thin and feeble hair. Miniature, phtitcal follicles is a specific feature of AGA. There is a displacement of follicles from anagen (growth) phase to telogen (resting) one. Hair thinning and weakening results in progressive hair loss.

It always takes a long time to treat AGA and sometimes patients are not satisfied with the results. Until quite recently pathogenetic therapy was based on oral use of systematic antiandrogens, which have a plenty of side effects. The main are: potency and libido decrease in men, sensitivity shift of androgen receptors. Predominantly, external treatment is accompanied by products, which are based on minoxidil. In some cases these products give a beneficial effect, but it is not long-lasting and the results are fast to regress after product withdrawal.

ADVANCED SKIN AND HAIR, INC. developed a unique Revivogen Scalp Therapy formula for hair loss. The ingredients include natural components, which inhibit 5-alpha-reductase, block androgen receptors and promote hair growth. These active components include gamma linolenic acid, alpha linoleic acid, linoleic acid, oleic acid, azelaic acid, Vitamin B6, Zinc, saw palmetto extract, beta sitosterol and procyanidin oligomer. Revivogen Scalp Therapy is the only product, which contains all these components in one formula.

We studied comparative efficacy of Revivogen Scalp Therapy and 2%-5% menoxidil solution. The participants were people with androgenic alopecia (women 2%, men 5% of solution). All patients were divided into 3 groups:

1. Rogaine treatment (minoxidil) group 2-5% (14 people);
2. Revivogen Scalp Therapy treatment group (15 people);
3. Control group (8 people)

Clinical profile of the patients.

The total number of patients was 37 in the age from 17 to 55, among them 19 women, 18 men. More than a half of patients had a genetic burden to AGA (acc. to anamnesis).

Table 1.

AGA women division in respect of the age and genetic burden

	AGA severity according to Ludwig		
	Light(n=5)	Medium (n=10)	heavy(n=4)
Age	18-25years	26-45years	Older then 45
Genetic burden	Everybody have	Have 63% (n=5)	Have 50% (n=3)

According to the table, in juvenile age (18-25 years) all women noted genetic burden to alopecia, however, more often AGA was noted in middle age women (26-45 years). Middle age woman had predominance of medium Ludwig heaviness.

Men had 3, 4 and 5 Norwood stages. In the table 2 there is an AGA men division in respect of the age and genetic burden.

Table 2.

AGA men division in respect of the age and genetic burden

	AGA stage according to Norwood		
	Third (n=6)	Forth (n=8)	Fifth (n=4)
Age	18-25 years	26-45 years	Older than 45
Genetic burden	Everybody have	Have 49% (n=3)	Have 50% (n=2)

Men had primary Norwood 4, the age was from 26 to 45. AGA genetic burden predominates in women of young age.

Trichological study of the scalp was conducted with the help of computer diagnostic program Trichoscience v.1.4. Trichological AGA markers include the following features: miniaturized hairs, perifollicular hyperpigmentation, focal atrichia and skin hyperpigmentation of «honeycomb» type. It is determined, that all AGA patients had miniaturized hairs and perifollicular hyperpigmentation, 24,8% had focal atrichia, about 18,8% had skin hyperpigmentation of «honeycomb» type.

Table 3

Frequency of trichological markers of AGA patients according to gender

Trichological markers	Women % ; (n=19)	Men%; (n=18)
Miniaturized hairs	100	100
Focal atrichia	24,6	25,0
Hyperpigmentation of the orifice of hair follicles	15,8	12,1
Hyperpigmentation of «honeycomb» type	18,8	18,9

In this case severity level of the process correlated with the quantity of miniaturized hairs and intensity of focal atrichia. In other words, the more miniaturized hairs and focals of atrichia of 1 cm² a patient had, the higher severity level of the process was noted.

Efficiency estimation of the therapy was conducted after 3 and 6 months from the beginning of the treatment. Efficacy endpoint of the therapy: significant improvement, improvement without any effect. Under significant improvement we understand a profound reduction of hair loss, active growth of normal hairs in androgen-dependent zones, expansion of hair diameter, the growth of terminal hairs in the zone of the focal atrichia, the improvement of skin condition of the scalp (reduction of dandruff and greasiness). Under improvement we understand a slower dynamics of the process with the hair loss, the growth of the singular normal hairs in androgen-dependent zones and the growth of pseudo-vellus hairs in the focals of atrichia. During 6 months the 1st group (14 people) - 8 women and 6 men used 2 and 5% Rogaine solution 2 times a day (in the morning and in the evening). The 2nd group (15 people) – 7 women и 8 men used Revivogen Scalp Therapy once a day in the evening. The 3rd group was control one (8 people) – 3 women and 5 men - did not use any products.

Table 4
3 months treatment results

	1 st group (n=14);%	2 nd group (n=15); %	Control (n=8);%
Profound improvement	28,6 (4 people)	40 (6 people)	-
Improvement	50 (7 people)	46,7 (7 people)	37,5(3 people)
No effect	21,4 (3 people)	13,3 (2 people)	62,5(5 people)

In 3 months from the beginning of the treatment the patient percentage with profound improvement prevailed in the second group (Revivogen Scalp Therapy) in 1,4 times in comparison with the first one (Rogaine) ($p < 0,05$). The number of patients with improvement in the 1st and the 2nd groups almost was the same, having a difference with the control group in 1,3 times ($p < 0,05$). The number of patients without any effect of the therapy in the second group was 1,6 times less than in the first one. All patients in the 2nd group noted a high tolerance of Revivogen Scalp Therapy and its high cosmetic quality (easy absorptivity, the absence of acrid odor and reduction of hair greasiness).

Table 5
6 months treatment results

	1 st group (n=14);%	2nd group (n=15); %	Control (n=8);%
Profound improvement	42,9 (6 people)	53,3 (8 people)	-
Improvement	42,9(6 people)	46,7 (7 people)	50 (4 people)
No effect	14,2 (2 people)	-	50(4 people)

In 6 months in the first group (Rogaine) the number of patients with good clinical performance (profound improvement and improvement) became equal, however, there were some patients, which had no results (14,2%). There was also good clinical performance in the second group (Revivogen Scalp Therapy) – the number of patients with improvement and profound improvement was almost equal, but there were no patients with the absence of the therapy effect like in the first and control groups. Thus, Revivogen Scalp Therapy of ADVANCED SKIN AND HAIR, INC proved to show high efficacy among men and women with AGA, therefore it can be recommended in complex therapy of the disease.

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