

# Chronic allergic skin diseases in men: the influence of age-related dishormonal status

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The study of the etiology and pathogenesis of allergic skin diseases, as well as a reasonable selection of their optimal treatment are extremely relevant problems of modern medicine. Changes in the sex and gonadotropic hormones levels, which occur in patients with chronic allergic dermatoses and affect them, are studied insufficiently.

**The objective** of this work was to study changes in levels of sex and gonadotropic hormones in patients with allergic dermatoses in older age groups and the development of effective methods of their treatment.

**Materials and Methods.** Were examined 203 men: 36 healthy persons aged 25–44 years, 167 male aged 45–64 years (including 63 healthy males and 104 patients with chronic allergic dermatoses). The assessment of allergic dermatoses severity was conducted according to the SCORAD system. The evaluation of patients' life quality was performed by means of a DLQI questionnaire. The Aging Males Symptoms Scale was used. The concentration of testosterone, testosterone-binding globulin, follicle stimulating hormone, luteinizing hormone, prolactin were studied in blood serum by ELISA.

**Results.** During the study it was found that male patients with chronic allergic dermatoses had significantly lower testosterone levels and significantly higher levels of follicle stimulating hormone, luteinizing hormone, prolactin, testosterone-binding globulin in comparison with the group of healthy men of similar age. Additional use of drug on the basis of steroidal saponins in the complex therapy of male patients aged 45–64 years with chronic allergic dermatoses had a positive clinical effect, which manifested by reduction of SCORAD index, DLQI index, Aging Males Symptoms Scale index and also normalized the level of testosterone. Additional use of nootropic drug in this cohort of patients had positive clinical effect, which manifested by reduction of SCORAD index, DLQI index, Aging Males Symptoms Scale index and also normalized the levels of testosterone, follicle stimulating hormone, luteinizing hormone and prolactin.

**Conclusions.** The obtained results indicate the existence of age-related dishormonal state in male patients aged 45–64 years with chronic allergic dermatoses. The results of investigation substantiate the feasibility of corrective measures in male patients with allergic chronic dermatoses, by the use of nootropic drug and drug on the basis of steroidal saponins.

**Ключові слова:**  
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## Хронічні алергічні захворювання шкіри у чоловіків: вплив вікового дисгормонального статусу

Н. Ю. Резніченко

Вивчення етіології та патогенезу алергічних захворювань шкіри, як і вибір оптимального лікування, являють собою надзвичайно важливі проблеми сучасної медицини. Зміни рівнів статевих і гонадотропних гормонів, що відбуваються в пацієнтів із хронічними алергічними дерматозами та впливають на них, вивчені недостатньо.

**Мета роботи** – вивчити зміни рівнів статевих і гонадотропних гормонів у пацієнтів з алергодерматозами старших вікових груп і розробити ефективні методи їх лікування.

**Матеріали та методи.** Обстежили 203 чоловіки: 36 здорових осіб (25–44 років), 167 чоловіків (45–64 років), включаючи 63 здорових і 104 хворих із хронічними алергодерматозами. Тяжкість алергодерматозів оцінювали за шкалою SCORAD. Оцінювання якості життя здійснювали за опитувальником DLQI. Застосовували опитувальник Aging Males Symptoms Scale. Концентрацію тестостерону, тестостеронзв'язувального глобуліну, фолікулостимулюючого, лютеїнізуючого гормонів, пролактину в сироватці крові визначали імуноферментним методом.

**Результати.** Під час дослідження виявили, що в чоловіків, які хворі на хронічні алергічні дерматози, рівень тестостерону був вірогідно нижчим, а рівні фолікулостимулюючого гормона, лютеїнізуючого гормона, пролактину, тестостеронзв'язувального глобуліну – вірогідно вищими порівняно зі здоровими чоловіками аналогічного віку. Додаткове використання препарату на основі стероїдних сапонінів у комплексній терапії чоловіків (45–64 років), які хворі на хронічні алергічні дерматози, мало позитивний клінічний ефект, що проявлялось зменшенням індексу SCORAD, індексу DLQI, індексу за Aging Males Symptoms Scale, а також нормалізацією рівню тестостерону. Додаткове застосування ноотропного препарату в цій когорті хворих мало позитивний клінічний ефект, що проявлялось зменшенням індексу SCORAD, індексу DLQI, індексу за Aging Males Symptoms Scale, а також нормалізацією рівнів тестостерону, лютеїнізуючого гормона, фолікулостимулюючого гормона та пролактину.

**Висновки.** Результати свідчать про наявність вік-асоційованого дисгормонального стану в чоловіків (45–64 років), які хворі на хронічні алергодерматози, доводять доцільність корегувальних заходів у чоловіків, які хворі на хронічні дерматози, шляхом застосування ноотропних препаратів і препаратів на основі стероїдних сапонінів.

## Хронические аллергические заболевания кожи у мужчин: влияние возрастного дисгормонального статуса

Н. Ю. Резниченко

Изучение этиологии и патогенеза аллергических заболеваний кожи, как и выбор оптимального лечения, представляют собой чрезвычайно важные проблемы современной медицины. Изменения уровней половых и гонадотропных гормонов, которые происходят у пациентов с хроническими аллергическими дерматозами и влияют на них, изучены недостаточно.

**Цель работы** – изучить изменения уровней половых и гонадотропных гормонов у пациентов с аллергодерматозами старших возрастных групп и разработать эффективные методы их лечения.

**Материалы и методы.** Обследовали 203 мужчины: 36 здоровых лиц в возрасте 25–44 лет, 167 мужчин в возрасте 45–64 лет (включая 63 здоровых и 104 больных с хроническими аллергодерматозами). Оценка тяжести аллергодерматозов проводилась по шкале SCORAD. Оценка качества жизни проводилась по опроснику DLQI. Применялся опросник Aging Males Symptoms Scale. Концентрация тестостерона, тестостеронсвязывающего глобулина, фолликулостимулирующего, лютеинизирующего гормонов, пролактина определялась в сыворотке крови иммуноферментным методом.

**Результаты.** Во время исследования выявлено, что у мужчин, больных хроническими аллергическими дерматозами, уровень тестостерона был достоверно ниже, а уровни фолликулостимулирующего гормона, лютеинизирующего гормона, пролактина, тестостеронсвязывающего глобулина – достоверно выше в сравнении со здоровыми мужчинами аналогичного возраста. Дополнительное применение препарата на основе стероидных сапонинов в комплексной терапии мужчин в возрасте 45–64 лет, больных хроническими аллергическими дерматозами, имело положительный клинический эффект, что проявлялось снижением индекса SCORAD, индекса DLQI, индекса Aging Males Symptoms Scale, а также нормализовало уровень тестостерона. Дополнительное применение ноотропного препарата у этой когорты больных имело положительный клинический эффект, что проявлялось уменьшением индекса SCORAD, индекса DLQI, индекса Aging Males Symptoms Scale, а также нормализовало уровни тестостерона, лютеинизирующего гормона, фолликулостимулирующего гормона и пролактина.

**Выводы.** Полученные результаты свидетельствуют о наличии возрастного дисгормонального состояния у мужчин в возрасте 45–64 лет, больных хроническими аллергодерматозами; обосновывают целесообразность проведения корректирующих мероприятий у мужчин, больных хроническими дерматозами, путём применения ноотропных препаратов и препаратов на основе стероидных сапонинов

**Ключевые слова:**  
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The main dermatoses with the leading allergic component in pathogenesis and clinical course are atopic dermatitis, various forms of eczema, allergic contact dermatitis [1,2]. The study of the etiology and pathogenesis of these skin diseases, as well as a reasonable selection of their optimal treatment are extremely relevant problems of modern medicine [1,2]. Numerous studies showed the complex multifaceted nature of the violations on the part of different organs and systems in patients with allergic dermatitis [2–4]. However, changes in the levels of sex and gonadotropic hormones, which occur in patients with chronic allergic dermatose and affect them, are studied insufficiently. This fact justifies the need for further research [4].

### The objective of investigation

Investigation of changes in sex and gonadotropic hormones levels in patients with allergic dermatitis in older age groups and the development of effective methods of their treatment.

### Materials and methods

Were examined 203 men: 36 healthy persons aged 25–44 years, 167 male aged 45–64 years (including 63 healthy males and 104 patients with chronic allergic dermatoses). The assessment of allergic dermatoses severity was conducted according to the SCORAD (Scoring of Atopic Dermatitis) system [5]. The evaluation of patients' life quality was performed by means of a DLQI (Dermatology Life Quality Index) questionnaire [6]. The questionnaire survey according to the Aging Males Symptoms Scale (AMS) was conducted to assess the symptoms of males aging and the androgen

deficiency. The concentration of testosterone (T), testosterone-binding globulin (TSG), luteinizing hormone (LH), follicle stimulating hormone (FSH), prolactin (PRL) were studied in blood serum by ELISA.

In order to determine the effectiveness of the proposed methods patients with chronic allergic dermatoses were divided into 3 therapeutic groups, depending on the used method of treatment. Group I received standard therapy of chronic allergic dermatosis. Group II used basic therapy and nootropic drug additionally. Group III received basic therapy and additional herbal remedies on the basis of steroidal saponins. Patients in all 3 groups were examined after 3 months of starting treatment.

Basic therapy of chronic allergic dermatoses included elimination regime (elimination of contact with allergens and nonspecific stimuli, including food), skin care products (application of emollients), topical treatment (application of topical corticosteroids, topical inhibitors of calcineurin, antibacterial agents – if necessary), systemic treatment (H1-antihistamines, detoxifying, hyposensitizing medicines, enzyme preparations, antibacterial therapy for certain indications), physiotherapy.

To compare the data in different groups we used paired Student's t-test with the calculation of arithmetic mean value (M) and the standard error of the arithmetic average (m). The normality of data distribution was checked using the Shapiro–Wilk test at the significance level of 0.01. When we evaluated the received data, the level of significance was taken as 0.05 (the differences between the data were considered reliable at  $p < 0.05$ , with only exception – the Shapiro–Wilk test). Statistical processing of results was performed using software Statistica 6.1 (StatSoft Inc., serial № AGAR909E415822FA).

**Results and Discussion**

During the study it was found that male patients with chronic allergic dermatoses had significantly lower testosterone levels and significantly higher levels of LH, FSH, prolactin, TSH in comparison with group of healthy men of similar age (Table 1).

Considering the obtained results of hormone levels and TSH investigation in male patients aged 45–64 years with chronic allergic dermatoses, we proposed additional use of the nootropic drug and phytomedicine based on steroidal saponins in the treatment of allergic diseases. The choice of a nootropic drug was caused by primarily identified violations of the gonadotropins levels in male patients of older age groups with chronic allergic dermatoses. Nootropic drugs have the ability to improve metabolism in brain and, consequently, to exert a normalizing effect on processes regulated by brain. The choice of plant-based steroidal saponins was grounded by the identified decrease in testosterone levels in male patients aged 45–64 years with chronic allergic dermatoses, which required appropriate correction. Herbal remedies contained mainly steroidal saponins of the furostanol type,

among which protodioscin was prevailed. Protodioscin metabolized in the organism to dehydroepiandrosterone.

The results of the disease clinical picture dynamics and quality of life depending on the therapy regimens are presented in the Table 2. As it is seen from the Table 2, the courses of treatment in all therapeutic groups of patients led to improvement of the clinical course of chronic allergic dermatoses. It manifested by reduction of SCORAD index. However, the decrease in SCORAD index was more intense in individuals who were receiving additional nootropic drug or herbal drug on the basis of steroidal saponins. This is evidenced by the presence of significant differences in SCORAD index and percent ΔSCORAD between the group of patients who used standard therapy, and patients treated with the nootropic drug or herbal drug on the basis of steroidal saponins.

A similar trend was noted in the quality of patients' life. Standard therapy of patients with chronic allergic dermatoses improved their quality of life, which was manifested by a decrease in DLQI. However, a better improvement of life quality was noted in patients who additionally received a nootropic medicine or herbal remedies on the basis of steroidal saponins. We obtained significant differences in the values of the DLQI index and percentage ΔDLQI between the group of patients after the basic therapy and groups with additional use of a nootropic drug or phytomedicine based on steroidal saponins. Percentage of persons, who had DLQI index less than 5 points in 3 months from the beginning of treatment, was higher in the groups with additional use of a nootropic drug or phytomedicine based on steroidal saponins compared to persons who received only basic therapy.

AMS index after the basic therapy was slightly lower ( $32.8 \pm 0.40$ ) than before treatment ( $33.6 \pm 0.4$ ), but significant differences were not received. However, in patients with allergic dermatoses, who received basic therapy in combination with a nootropic drug and in combination with plant-based steroidal saponins, AMS index was significantly lower than before treatment ( $31.6 \pm 0.7$  and  $31.7 \pm 0.7$  vs  $33.6 \pm 0.4$  accordingly).

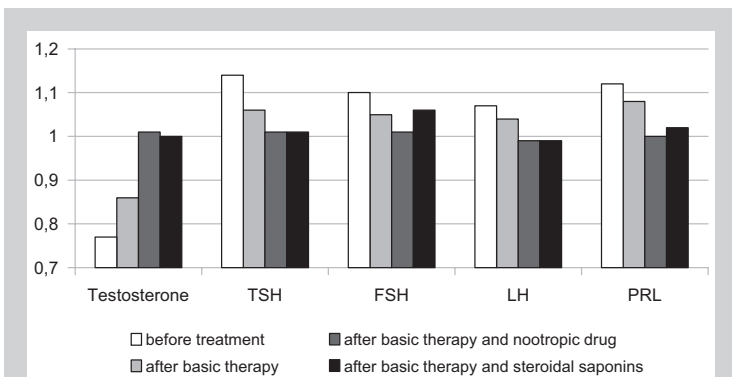


Fig. 1. Hormone levels and TSH in male patients with chronic allergic dermatoses aged 45–64 years depending on the treatment (results obtained in healthy men aged 45–64 years taken as 1).

Table 1. The levels of AMS index, sexual hormones and gonadotropins, TSH in healthy men and males with chronic allergic dermatoses

Indicator	Males aged:		
	25–44 years	45–64 years (healthy)	45–64 years (with allergic dermatoses)
Testosterone, nmol/L	18.67 ± 0.48	14.72 ± 0.51*	11.23 ± 0.47**
TSH, nmol/L	33.19 ± 0.44	43.47 ± 0.98*	51.13 ± 1.34**
FSH, IU/L	3.12 ± 0.04	3.98 ± 0.08*	4.56 ± 0.06**
LH, U/L	3.11 ± 0.04	3.68 ± 0.05*	4.07 ± 0.06**
PRL, mMe/l	219.3 ± 2.4	257 ± 5.2*	286.1 ± 4.3**
AMS, score	24.3 ± 0.4	30.1 ± 0.4*	33.6 ± 0.4**

\*: statistically significant differences (P < 0.05) when compared with males aged 25–44 years; #: statistically significant differences (P < 0.05) when compared the group of healthy males aged 45–64 years and males aged 45–64 years with chronic allergic dermatoses.

Table 2. Dynamics of clinical indicators and quality of life in patients with chronic allergic dermatoses, depending on treatment schemes

Groups of patients	SCORAD	ΔSCORAD, %	DLQI	ΔDLQI, %	DLQI < 5, %
before treatment	44.1 ± 0.92		13.4 ± 0.43		
after basic therapy	24.0 ± 1.52*	50.8 ± 2.67	6.9 ± 0.67*	47.8 ± 4.45	47.4
after basic therapy and nootropic drug	15.8 ± 1.83**	66.6 ± 3.42#	3.9 ± 0.49**	69.9 ± 3.44#	63.5
after basic therapy and steroidal saponins	17.4 ± 1.95**	65.9 ± 3.32#	5.0 ± 0.53**	62.1 ± 5.11#	62.7

\*: statistically significant differences (P < 0.05) when compared with group of patients before treatment; #: statistically significant differences (P < 0.05) when compared with group after basic therapy.

The study also included the investigation of the different schemes of chronic allergic dermatitis treatment effectiveness in relation to the normalization of the sex and gonadotropic hormones levels. The results are presented in *Fig. 1*. For clarity, the results of patients' examination were compared with the results of healthy men aged 45–64 years. The results of healthy males aged 45–64 years were taken as 1. As it can be seen from *Fig. 1*, the examination of patients in 3 months after the beginning of treatment showed that dyshormonal status of patients reduced on the background of the clinical picture improvement. However, the lowered testosterone levels and higher levels of FSH, prolactin, LH, and TSH remain in patients after basic therapy only in comparison with similar results in healthy men aged 45–64 years.

At the same time, concentrations of testosterone, FSH, LH and prolactin reached the levels of healthy men aged 45–64 years after 3 months of treatment in patients with chronic allergic dermatoses, who received basic therapy in combination with a nootropic drug (*Fig. 1*). Normalization of the FSH, prolactin, LH concentrations were seen, because nootropic drug had positive influence on the metabolic processes in the brain and, thereby, improved hormonal interaction.

The use of the drug on the basis of steroidal saponins in the treatment of chronic allergic dermatoses led to the normalization of testosterone concentrations in the blood of patients, reduced concentrations of LH to values obtained in healthy men aged 45–64 years (*Fig. 1*). The use of the drug on the basis of steroidal saponins in complex treatment of chronic allergic dermatoses did not give the possibility to reduce the level of FSH and prolactin in blood of patients that can be explained by the mechanism of the drug action. Normalization of testosterone concentrations does not automatically lead to the elimination of dyshormonal state, and requires targeted interventions.

## Conclusions

Male patients aged 45–64 years with chronic allergic dermatoses had significantly lower testosterone levels and significantly higher levels of FSH, prolactin, LH, TSH in comparison with group of healthy men of similar age. Additional use of drug on the basis of steroidal saponins in the complex therapy of male patients aged 45–64 years with chronic allergic dermatoses had a positive clinical effect, which manifested by reduction of SCORAD index, DLQI index, AMS index and also normalized the level of testosterone. Additional use of nootropic drug in the complex therapy of male patients aged 45–64 years with chronic allergic dermatoses had positive clinical effect, which manifested by reduction of SCORAD index, DLQI index, AMS index and also normalized the levels of testosterone, FSH, prolactin, LH.

**Prospects for further research:** to study the influence of age-related dyshormonal state on clinical course of other chronic dermatoses.

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