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THE DYNAMICS OF PHAGOCYTOCIS INDICES IN PATIENTS WITH ACNE VULGARIS WHILE USING DIFFERENT THERAPIES

Key words: *acne vulgaris, phagocytosis, treatment.*

Abstract. *The paper presents a dynamics of phagocytocis indices in patients with acne vulgaris while using different therapies. It has been established that the use of comprehensive treatment with administration of a probiotic "Lacium" and an immunocorrective drug "Licopid" for patients with moderate and severe acne vulgaris combined with intestinal dysbiosis and lower activity of blood phagocytes, contributes to normalization of blood indices, characterizing the initial and final stages of phagocytic process.*

Introduction

Optimizing the treatment of acne vulgaris is the important task of modern dermatology. Acne vulgaris is one of the most common skin diseases among youth and young working age [3, 11, 12]. Chronic Acne vulgaris, the development of a rash on exposed skin areas (face, shoulders, upper trunk), frequent formation of persistent skin scarring (post-acne) is the cause of psycho-emotional disorders in patients and deterioration in quality of their life [1, 13, 14].

In recent years, Acne vulgaris is characterized by more severe clinical course with frequent prolonged relapses, torpid to the means of standard therapy, justifying the relevance of scientific research to determine the pathogenic factors and optimize their treatment [2, 7, 15].

It has been established that the pathogenesis Acne vulgaris is complex and multifactorial, dermatitis occurs in individuals against the backdrop of genetic predisposition with disorders of the endocrine regulation of systemic immunity, metabolic disorders, the presence of chronic foci of infection, etc. [1-3, 6]. Previous studies in patients with Acne vulgaris discovered changes of phagocytosis and disturbances in intestinal ecosystems that are dependent on the severity of clinical manifestations of dermatosis their probable changes were found in patients with moderate and severe acne [4, 5, 11], which proves the feasibility of differentiated administration of probiotics and immunocorrective drugs in comprehensive therapy for Acne vulgaris.

Objectives

To identify and analyze the dynamics of phagocytosis indices in patients with acne vulgaris under different treatments - standard and integrated with the use of probiotics and immunocorrective drugs.

Materials and methods

67 patients with acne vulgaris, including 29 male patients and 38 women aged from 18 to 29 years old were involved in the study The criteria for inclusion into the study were the following: clinical manifestations of moderate and severe acne; patient's age - 18 years or more; absence of chronic physical illnesses or their exacerbation at the time of the examination. According to clinical criteria of acne vulgaris [3], the majority (49 - 73,1%) of the patients were diagnosed with moderate acne, while 17 (25,4%) of them had severe form of acne with dermatosis duration from 1,5 to 12 years. The control group included 35 healthy individuals (donors) of the same age.

In order to assess the state of phagocytosis in patients with acne vulgaris, we determined phagocytic activity (PA) and phagocytic index (PI) of polymorphonuclear leukocytes, nitro blue tetrazolium recovery test (NBT test spontaneous) and NBT-test pyrogenal stimulated by known methods [10]. Statistical analysis of the results of research was carried out by the methods of statistical analysis [8] using software (Excel, Statistica 6.0), the difference of averages was considered probable at p<0,05.

Results and discussion

By determininng the phagocytosis indices in 67 patients with moderate and severe acne vulgaris at the beginning of the treatment, we revealed a significant reduction in PI (10,5%, p=0,008) compared with those in control group in patients with acne 5,11±0,113, in patients of control group - 5,71±0,220), which reflects the initial stages of phagocytic process, and we olso noticed a drop of spontaneous NBT-test (by 43,15%, p<0,001; in patients with acne - 11,2±0,654, and in the control group - 19,7±0,775), which is characteristic for the final stages of the phagocytic process. However, the majority (61 -

91,1%) of examined patients had manifestations of associated intestinal dysbiosis of the I-IV degrees.

In the process of treatment, patients with acne were divided into 3 groups randomly, comparable in age, sex and distribution of patients according the severity of dermatosis: the patient of the first group (22 persons) received basic acne treatment [9], patients of group II (22 people) were additionally administered a probiotic "Lacium", patients of group III (23 people) were administered a probiotic "Lacium" along with basic therapy(1 sachet twice a day 30 minutes before meals, for 14 days) and immunocorrective drug "Licopid" (1 mg sublingually 30 minutes before meals for 10 days), which has stimulating effect on cellular immunity in general and phagocytic activity of phagocytic cells in particular.

The dynamics of phagocytosis indices in patients with acne vulgaris due to using different therapies is presented in the table.

The results of the studies in patients with acne

Table

Evolution of phagocytosis indices in patients with acne vulgaris after different therapies (M±m)

Indices, measurement units		Patients with acne vulgaris (n=67)			Control group (n=35)
		1st group (n_1=22)	2nd group (n_2=22)	3rd group (n_3=23)	
Phagocytic activity, %	Before treatment	68,4±0,988	69,1±1,01 p_{1-2}=0,623	67,3±0,835* p_{1-3}=0,40; p_{2-3}=0,177	70,6± 1,17
	After treatment	66,7±0,973 *	68,9±0,939 p_{1-2}=0,111	73,9±1,43 p_{1-3}<0,001; p_{2-3}=0,006	
P (before/after treatment)		P=0,227	P=0,885	P<0,001	
Phagocytic index	Before treatment	5,10±0,158	5,24±0,235 p_{1-2}=0,624	4,98±0,189* p_{1-3}=0,629; p_{2-3}=0,394	5,71± 0,220
	After treatment	5,02±0,135 *	5,96±0,331 p_{1-2}=0,012	6,17±0,255 p_{1-3}<0,001; p_{2-3}=0,618	
P (before/after treatment)		P=0,702	P=0,083	P<0,001	
Spontaneous NBT-test	Before treatment	11,5±1,29** *	11,5±1,23** * p_{1-2}=1,0	10,6±0,870*** p_{1-3}=0,566; p_{2-3}=0,552	19,7± 0,775
	After treatment	9,11±0,323 ***	10,6±0,524 *** p_{1-2}=0,020	13,3±1,06*** p_{1-3}<0,001; p_{2-3}=0,028	
P (before/after treatment)		P=0,079	P=0,505	P=0,056	
Stimulated NBT test	Before treatment	30,6±0,398	29,3±0,931 p_{1-2}=0,206	28,0±0,664 p_{1-3}=0,002; p_{2-3}=0,262	29,5± 1,08
	After treatment	29,9±0,589	31,3±0,512 p_{1-2}=0,08	31,6±0,846 p_{1-3}=0,107; p_{2-3}=0,762	
P (before/after treatment)		P=0,330	P=0,067	P=0,002	

Notes: 1. * – The degree of probability of the indices deference relative to control group of patients:
    * – p<0,05; ** – p<0,01; *** – p<0,001.

2. p_{1-2}, p_{1-3}, p_{2-4} – probability of the indices deference in patients of different groups.

3. P – probability of the indices deference in the groups of patients before and after the treatment.

vulgaris in the first camparison group, where a standard therapy was used, showed a tendency to decreasing of PA and PI, whereupon they became significantly less relative to the same indices of the people of control group (5,5% p=0,023 and 12,1%, p=0,024 respectively).

Patients with acne vulgaris from the second comparative group, who received probiotic "Lacium" along with the basic therapy, at the end of treatment tended to increase PI with the significant difference between the same index in the first comparative group (an increase by 18,7%; p=0,012) without significant alteration of other studied parameters of phagocytosis.

However, patients with acne vulgaris in the core group who received combined therapy with the inclusion of probiotic "Lacium" and immunotropic drug "Licopid" had a probable increase in both PI and PA regarding their initial level (23,9% and 9,8 %, p<0,001 respectively), and the values of these parameters at the end of treatment in patients from the first comparative group (22,9% and 10,8%, p<0,001 respectively), as well as PA relative to values of PA in patients from the second comparative group (by 7,3%, p=0,006).

Patients of the core group, at the end of treatment, also had significant increase of stimulated NBT test (by 12,9%, p=0,002), and tended to increase spontaneous NBT test of with its probable difference having the same value as in the the 1st and 2nd comparative groups (by 45,9%, p<0,001 and 25,5%, p=0,028 respectively), but preserving significant difference with the same rate in the control group (a decrease by 32,5%, p<0,001).

The obtained better results on the evolution of the phagocytosis indices in patients of the main group compared to those from the comparative groups could be related both to direct stimulating effect of immunotropic drug on phagocytic blood cells, and due to a decrease of microbial intestinal load on them as a result of normalizing probiotic action on concomitant dysbiotic disturbances of the large intestine in these patients.

Thus, an analysis of the results of different treatments of patients with moderate and severe acne vulgaris (basic, basic with probiotics) indicates that the administration of probiotic "Lacium" and imunocorrective drug "Licopid" against the background of basic therapy makes a normalizing effect on the leading phagocytosis rates of patients with acne, and enhances their phagocytic activity both during capture and formation of bactericidal activity and in the final stages of phagocytosis, justifying the feasibility of a combined use of probiotics and immunotropic drugs in combined treatment of the patients with moderate and severe acne vulgaris.

Conclusion

Using combined therapy with the inclusion of imunomotropic drug "Licopid" and a probiotic "Lacium" for patients with moderate and severe acne vulgaris with concomitant intestinal dysbiosis and lowering of phagocytic blood cells activity leads to normalization or tendency to normalization of phagocytosis indices, justifying the feasibility of using these drugs in the combined treatment of these patients.

Prospects for further research

In the future we are going to determine and analyse the dynamics of other homeostasis indices in a combined treatment of patients, having moderate and severe acne vulgaris, by using immunotropic and probiotic drugs.

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ДИНАМИКА ДИНАМІКА ПОКАЗНИКІВ ФАГОЦИТОЗУ У ХВОРИХ НА ВУГРИ ВУЛЬГАРНІ ПРИ ЗАСТОСУВАННІ РІЗНИХ МЕТОДІВ ЛІКУВАННЯ

Ю.П. Карвацька

Резюме. У статті представлено динаміку показників фагоцитозу у хворих на вугри вульгарні при застосуванні різних методів лікування. Встановлено, що застосування хворим на вугри вульгарні середнього та тяжкого ступеня тяжкості із супутнім дисбіозом порожнини товстої кишки і зниженням активності фагоцитуючих клітин крові комплексного методу лікування із призначенням пробіотика "Лаціум" та імунокоригуючого засобу "Лікопід" сприяє нормалізації чи тенденції до нормалізації показників крові, які характеризують початкові та заключні стадії фагоцитарного процесу.

Ключові слова: вугри вульгарні, фагоцитоз, лікування.

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ПОКАЗАТЕЛЕЙ ФАГОЦИТОЗА БОЛЬНЫХ УГРЯМИ ВУЛЬГАРНЫМИ ПРИ ПРИМЕНЕНИИ РАЗЛИЧНЫХ МЕТОДОВ ЛЕЧЕНИЯ

Ю.П. Карвацкая

Резюме. В статье представлена динамика показателей фагоцитоза у больных угрями вульгарными при применении различных методов лечения. Установлено, что применение комплексного метода лечения с назначением пробиотика "Лациум" и иммунокорригирующего средства "Ликопид" у больных угрями вульгарными средней и тяжелой степени тяжести с сопутствующим дисбиозом полости толстой кишки и снижением активности фагоцитирующих клеток крови, способствует нормализации или тенденции к нормализации показателей крови, которые характеризуют начальные и заключительные стадии фагоцитарного процесса.

Ключевые слова: угри вульгарные, фагоцитоз, лечение.

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