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## The Prevalence Of Co-Morbidities In Russian Patients With Psoriasis: A Retrospective Study.

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### ABSTRACT

Psoriasis is a chronic recurrent erythematous and squamous genetically determined dermatosis with multifactorial nature, and associated with co-morbidities. To evaluate the prevalence of comorbid conditions in patients with psoriasis and its impact on the severity of dermatological process in the dermatology clinic of I. M. Sechenov First Moscow State Medical University, (Sechenov University) in Moscow. The retrospective study included 150 case histories of patients with psoriasis vulgaris, who were treated in our clinic of Dermatology and Venereology in the period from January 2014 to December 2015 . There were 68 men (45.3%) and 82 women (54.7%). The mean age onset of psoriasis was  $26.9 \pm 15.16$  years. 24.7% of patients had positive family history of psoriasis. 81 patients (54%) had psoriasis of the scalp 32 (17.5%) had palm and plantar psoriasis, 29 (19.3%) had intertriginous psoriasis, 39 (26%) patients had nail psoriasis. Common triggers of the disease include stress (48.3%), infection (3,3%), drug intake (5,3%). Diseases such as type 2 diabetes mellitus (22%), coronary heart disease (20%), hypertension (36%), obesity of varying degrees (I degree – 50%, II degree – 12%, III degree -6%) were often combined with psoriasis. The greatest number of comorbidities (3 or more) depended on the severity of the skin process and the patient's age and was observed mainly in patients older than 45-50 years. Assessment of the severity of each comorbid condition and its impact on the course of the disease and the patient's quality of life should underpin the choice of anti-psoriatic therapy.

**eywords:** psoriasis, co-morbidities, retrospective study, diabetes mellitus, metabolic syndrome.

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## INTRODUCTION

Psoriasis is a chronic recurrent dermatosis of multifactorial nature with a clear genetic predisposition and the influence of external factors. According to clinical and statistical data, 3% to 7% of the world's population suffer from psoriasis. The population frequency of psoriasis in Central Europe ranges from 2% to 4.7% [1, 2]. The relevance of the issue of such chronic dermatosis as psoriasis is due not only to the fact of its wide and global prevalence, but also to the increase in the incidence of psoriasis at a young working age. Also, it is due to the robust relationship with social factors, the predominance of severe, disabling, disturbing the mental status and resistant to therapy forms in the disease structure [3, 4].

The development of pathological processes in psoriasis is not limited to the formation of skin lesions, but also leads to the dysfunction of different organs [5]. The most well-known associations include psoriatic arthritis and nail psoriasis. However, other co-morbidities were recently observed, such as diabetes mellitus, cardiovascular diseases, obesity, mental disorders, inflammatory bowel diseases, with which psoriasis has a number of common immunological signs [6, 7]. Apart from the similar immunological mechanisms, genes common to psoriasis and its encountered comorbidities were also found.

The unfavorable situation with psoriasis is also associated with deterioration of the social and economic situation, limited opportunities for free inpatient care, high cost of medicines with a significant reduction in real incomes of the population, intensification of production with reducing paid sick leaves, discrepancy between the amounts allocated by insurance companies for examination and treatment with real costs.

Domestic and foreign sources report that psoriatic patients have a significantly decreased quality of life, psychoemotional disorders, including decreased self-esteem, social maladaptation and pathological personality development, especially at a young age [8,9,10]. The negative impact of psoriasis on the overall quality of life is much stronger in comparison with other serious diseases such as cancer, hypertension, diabetes mellitus and depression.

Financial difficulties of patients with psoriasis are also significant. They include the cost of therapy, as well as arise from the loss of career prospects. Incomes of patients with psoriasis, as it was recently shown in the study by T. Hawro et al. (2014) correlate with the severity of the disease and they are an important mediator of the global decline in the quality of life [11]. However, the precise mechanisms leading to lower incomes and higher unemployment level among patients with psoriasis remain unclear.

Thus, despite the results of previous studies, further study of comorbidity, quality of life, mental, social, and economic status of patients with psoriasis remains relevant today.

In order to evaluate the prevalence of comorbidities observed in patients with psoriasis and their impact on the severity of dermatological process, we performed a retrospective study of 150 case histories of patients with psoriasis who were treated in the Clinic of Dermatology and Venerology named after V. A. Rakhmanov of the I.M. Sechenov First Moscow State Medical University in Moscow.

## MATERIAL AND METHODS

This was the retrospective study of 150 case histories of patients with psoriasis vulgaris, who were treated in our clinic in the period from January 2014 to December 2015 and met the criteria of inclusion and exclusion, among whom there were 68 men (45.3%) and 82 women (54.7%). The mean age was  $42.8 \pm 2.5$  years.

Typically, psoriasis appeared in the first half of life, mainly at the age from 16 to 35 years ( $n=79$  (52.6%)), revealing the predominance of I type psoriasis among the patients. 37 patients (24.7%) had positive family history of psoriasis; there was a hereditary burden on the first and second lines of parentage. The disease duration varied from 1 to 45 years and more, at the average it was  $15.7 \pm 3.8$  years. According to the past medical history, almost all patients ( $n=145$ ; 96.7%) had winter psoriasis, 2 patients (1.3%) suffered from off-season exacerbations, 3 patients had continuous recurring progress of the disease.

81 patients (54%) had psoriasis of the hairy skull, 32 people (17.5%) had palmoplantar type, 29 people (19.3%) had intertriginous psoriasis. 39 patients had nail psoriasis (26%), with prevailing "nail pitting" type (18; 46, 15%) and onychogryphosis (11; 28, 2%) type lesions. Less often there were "oil stain" type (10; 25.6%) lesions. From subjective feelings in the area of psoriatic rashes, most often patients suffered from: itching of varying intensity - 125 people (83.3%), a feeling of skin tightening – 7 people (4.7%), burning and soreness in the sites of rash – 8 patients (5.3%). 25 patients (16.7%) had no subjective feelings.

Descriptive statistics were presented as number and percentages for categorical variables. Mean with standard deviation (SD) was used for normally distributed data, while median with interquartile range (IQR) was used for data that were not normally distributed. Collected data was tabulated using SPSS.

## RESULTS

Comorbid conditions were observed in 50 patients (33.3%), 22 of them (44%) had the phenomenon of polymorbidity (the presence of several comorbidities).

Among the endocrine system disorders, type 2 diabetes mellitus (compensated) was observed in 11 (22%) patients, 2 (4%) patients had a history of nodular goiter, 2 (4%) patients had hypothyroidism and 2 (4%) patients had thyroadenitis. Among the patients with diabetes mellitus, 5 (45.4%) initially showed the development of psoriasis, and subsequently a few years later the type 2 diabetes was observed, which confirms the literature data stating that patients with psoriasis have a higher risk of developing diabetes than in the general population. 4 patients (36.4%) developed psoriasis and diabetes almost simultaneously, and in case of 2 (18.1%) patients diabetes preceded the development of dermatosis.

10 (20%) patients suffered from ischemic heart disease and effort angina, 18 (36%) patients had II stage hypertension of 2 risk degree, 2 (4%) patients had a history of myocardial infarction. Vessel atherosclerosis was observed in 4 (8%) patients.

Liver diseases were observed in 7 (14%) patients, among them 3 (43%) patients had nonalcoholic fatty liver disease, chronic hepatitis was observed in 4 (57%) patients.

The majority of the study participants also had metabolic syndrome and obesity of varying degrees. Overweight (BMI 25 kg/m<sup>2</sup> - 30 kg/m<sup>2</sup>) was observed in 40 people (26.7%), obesity of I degree (BMI 30 kg/m<sup>2</sup> – 35 kg/m<sup>2</sup>) had 25 people (16.7%), obesity of II degree (BMI 35 kg/m<sup>2</sup> – 40 kg /m<sup>2</sup>) – 6 (4%), obesity of III degree (BMI – 40 kg/m<sup>2</sup> and more) – 3 (2%). The average BMI among women was 25.6, among men - 26.14.

Diseases such as type 2 diabetes mellitus (22%), coronary heart disease (20%), hypertension (36%), obesity of varying degrees (I degree – 50%, II degree – 12%, III degree -6%) were often combined with psoriasis. The greatest number of comorbidities (3 or more) depended on the severity of the skin process and the patient's age and was observed mainly in patients older than 45-50 years.

## DISCUSSION

Thus, comorbid conditions were observed in 50 patients (33.3%), 22 of them (44%) had the phenomenon of polymorbidity (the presence of several comorbidities), which is more common in patients with severe forms of dermatosis requiring systemic therapy. Diseases such as type 2 diabetes mellitus (22%), coronary heart disease (20%), hypertension (36%), obesity of varying degrees (I degree – 50%, II degree – 12%, III degree -6%) were often combined with psoriasis. The greatest number of comorbidities (3 or more) depended on the severity of the skin process and the patient's age and was observed mainly in patients older than 45-50 years. Endocrine system disorders were observed in 17 (34%) patients, diseases of the cardiovascular system - in 34 patients (68%), liver disease was observed in 7 (14%) patients.

The vast majority of the study participants (85.3%) had metabolic syndrome and obesity of varying degrees, while patients with overweight and obesity mainly had psoriasis of medium and heavy severity levels. Furthermore, the higher risk of development of individual components of the metabolic syndrome also showed the dependence of the response to treatment on the severity of psoriasis.

## CONCLUSION

Treatment of medium and severe forms of psoriasis (more than 10% of the body surface) should be performed taking into account such comorbidities as metabolic syndrome, cardiovascular disease, diabetes mellitus, and non-alcoholic fatty liver disease. According to statistical studies, such comorbid conditions in psoriasis are observed more often than in the general population. Findings obtained during the retrospective study should be taken into account in a personalized approach to treatment of patients with psoriasis vulgaris. Assessment of the severity of each comorbid condition and its impact on the course of the disease and the patient's quality of life should underpin the choice of anti-psoriatic therapy. In treatment of psoriasis, it is also necessary to take into account the risk of side effects of the systemic treatment administered, according to the comorbid conditions found individually in each patient.

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