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THE SPECIFIC FEATURES OF ARTERIAL HYPERTENSION IN OWERWEIGHT PATIENTS WITH PSORIASIS

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ABSTRACT

Because psoriasis is associated with many non-dermatologic diseases such as arterial hypertension, early correct diagnosis promotes more thorough screening of patients for comorbid conditions and their early diagnosis. Previous studies have shown that patients with psoriasis have an increased risk of poorly controlled arterial hypertension (AH). Moreover, it was found that the incidence of AH in patients with psoriatic arthritis is increased even after accounting for traditional cardiovascular risk factors. In order to fulfill the set task we studied the peculiarities of arterial hypertension and psoriasis clinic in two groups of patients: 52 individuals with hypertension and 100 with psoriasis and hypertension simultaneously. The severity of dermatosis course was estimated clinically, daily blood pressure index was determined by daily blood pressure monitoring, body mass index was calculated, PASI index was calculated, the levels of cytokines, cortisol and insulin were determined using enzyme immunoassay methods.

Keywords: Arterial hypertension, overweight, body mass index, blood pressure, insulin resistance, psoriasis, psoriatic plaques, PASI, insulin, dermatoses.

INTRODUCTION

According to different authors, arterial hypertension is an additional factor influencing both the development of psoriasis in general and the severity of its

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course. Blood pressure variability is formed by central nervous mechanisms of excitation and inhibition of cerebral cortex and subcortical structures with circadian periodicity. The level of arterial pressure variability to a certain extent is determined by common peripheral vascular resistance, cardiac output and internal organs requirements for energy substrate and oxygen, state of baro-, chemo- and adrenoreceptors. High variability of arterial hypertension in patients with hypertension is associated with higher frequency of cardiovascular complications. High values of arterial pressure variability are associated with:

- left ventricular myocardial remodeling;
- severity of hypertensive retinopathy;
- decreased renal function.

Together with such prevalence of arterial hypertension among psoriasis patients there are only single works about the mutual influence of these diseases, peculiarities of their course and therapy; there are almost no data about comparative characteristic of the reasons, mechanisms of development, clinical features of psoriasis at concomitant hypertensive disease. The combination of psoriasis and hypertension sets conditions for the formation of systemic inflammatory process with brighter clinical manifestations of both dermatosis and hypertension, peculiarities of circadian rhythm of blood pressure, formation of chronic stress pattern and decompensation development in case of long-term disease course, development of severe degree of hypertension. It is known that psoriasis is a fairly common disease, which affects about 1-3% of the population around the world. The incidence of psoriasis is growing progressively [2]. Several factors influence its prevalence: genetic, environmental, age, gender, ethnicity of the patient, place of residence (climatic factor, insolation influence). The development of psoriasis is based on the disorders of innate and adaptive immunity reactions, genetic changes, as well as a number of triggers and risk factors that play an important role in maintaining both systemic inflammation and the inflammatory process in the skin.

At the present time psoriasis pathogenesis is still insufficiently studied, though the significance of oxidative stress phenomena, endothelial dysfunction and systemic inflammatory response as its most important links is proved. According to some researches there is an increased risk of vascular pathology development of atherosclerotic genesis in patients with psoriasis:

- coronary heart disease;
- arterial hypertension;
- metabolic syndrome;

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- obesity;
- Diabetes mellitus type 2.

It was demonstrated that the prevalence of arterial hypertension in patients with psoriasis reaches 40%.

The aim of the article is to compare clinical signs and course of psoriasis in patients with and without arterial hypertension.

LITERATURE REVIEW AND METHODOLOGY

We studied 152 patients: psoriasis patients with arterial hypertension associated with overweight (100 patients) and 52 patients with hypertension without psoriasis who were admitted for evaluation and treatment.

Systolic blood pressure (BP) and diastolic blood pressure (DBP) were measured in the sitting position, three times at 1-3-minute intervals, on both arms. Thirty minutes before the measurement, we excluded eating, smoking, physical stress, and exposure to temperature factors (cold and heat). The subjects sat in a relaxed state before the measurement, the measurement was started after a 5-minute rest and in the above position and the average value was analyzed. The measurement was performed using a mechanical tonometer "Adjutor IAD-01-1".

Patients underwent anthropometry (height, weight, waist and hip circumference, abdominal circumference), body weight (BMI) was assessed by body mass index (BMI), which was calculated according to the formula: **(Figure 1)**

$$BMI\ \frac{weight\ (kg)}{Height\ (sm2)}$$

It is the ratio of body weight (in kilograms) to height (in meters) squared. WHO developed a classification of overweight and obesity based on BMI. (See table 1 for data).

Table 1: Classification of underweight, overweight, and obesity in adults according to BMI

Classification	BMI kg/m2
Severe underweight	< 16
Underweight (deficiency)	16-18,49
Normal	18,5-24,99
Overweight (obesity)	25-29,99
Overweight I stage	30-34,99
Overweight II stage	35-39,99
Overweight III stage (morbid)	40>

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To evaluate the severity of psoriasis disease we used the method of PASI (Psoriasis Area and Severity Index) calculation, which is the main tool for determining the severity of psoriasis. Usage of this index allows to evaluate objectively the efficiency of carried out therapy and ideally should be calculated before, during and after the course of therapy. PASI index is represented by an integer from 0 (no disease) to 72 (the most severe course) and reflects the affected area taking into account the intensity of clinical symptoms, such as erythema, intensity of peeling and infiltration. There are several modifications of the PASI, but according to many authors the scale that takes into account the 3 above-mentioned clinical signs is considered to be the classical one.

DISCUSSION

To determine the PASI a patient's body is conditionally divided into four areas (legs - 40% of the total skin surface, trunk (chest, abdomen and back) - 30% of the skin surface, arms - 20% and head - 10%). Each of these four areas is evaluated separately - from 0 to 6 points depending on the degree of damage. Then for each area we assess the intensity of each of the 3 clinical signs - erythema, intensity of skin desquamation and infiltration. The intensity is assessed from 0 (no sign) to 4 (maximum degree of manifestation). After that we determine an index for each area according to the formula: (erythema + desquamation + infiltration) * degree of lesion * weight coefficient of the area. The area weight coefficient corresponds to the skin surface area: 0.4 for legs, 0.3 for trunk, 0.2 for arms, 0.1 for head. After calculating the index for each of the 4 regions, we sum up the obtained indices and get the total combined PASI index. The PASI index characterizes:

- within 10 points - mild course of the disease;
- up to 20-30 points - moderate severity of the process;
- over 31 points - a severe course of dermatosis.

Results: The average age of the patients was from 45-75 years old, 84 men and 68 women. (Table 2)

Table 2. Distribution of study subjects

Age	Gender		AH without psoriasis	AH with psoriasis	With BMI	Without BMI
	W	M				
45-55	17	21	14	36	37	22
56-65	24	37	23	38	33	22
66-70	27	26	15	26	24	14

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The results obtained testify to the presence of different degrees of obesity in the subjects, in which I degree prevails (42%), as well as to the degree of arterial hypertension, its indicators varying depending on age, sex, antihypertensive drugs taken. We studied the peculiarities of clinical manifestations of psoriasis. It should be mentioned that the overwhelming majority of patients (90%) had widespread forms, and only in 10 cases (10%) - limited (palm-treated) form.

CONCLUSIONS

The duration of the disease, especially in combination of psoriasis and arterial hypertension, and presence of a severe degree of hypertension had a negative influence on the adaptation mechanisms, which was proved by a significant decrease of cortisol levels (difference was 39,74% in favor of patients with 1-2 degrees of arterial hypertension) and increase of insulin in the blood (difference was 31,91 % in favor of patients with 1-2 degrees of hypertension when comorbid pathology was present). Thus, the combination of psoriasis and arterial hypertension creates conditions for the formation of a systemic inflammatory process with more severe clinical manifestations of both dermatosis and hypertension, the features of circadian rhythm of blood pressure, the formation of a picture of chronic stress and the development of decompensation in the long-term course of the disease, development of a severe degree of hypertension.

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