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AGE-RELATED FEATURES OF THE MANIFESTATIONS AND COURSE OF PSORIASIS IN THE REPUBLIC OF UZBEKISTAN

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Abstract
Psoriasis is a chronic immune-mediated inflammatory skin disease characterized by a relapsing course, pronounced disorders of keratinization, and changes in the immune, vascular, and barrier mechanisms of the skin. The clinical manifestations of the disease may vary substantially depending on the patient's age, duration of the pathological process, extent of skin involvement, and intensity of inflammation. Of particular interest is the relationship between age, psoriasis severity, cutaneous microcirculation, and skin barrier function in the population of the Republic of Uzbekistan. This article considers age-related clinical and physiological features of psoriasis and outlines a framework for their assessment using clinical severity indices and non-invasive measurements of epidermal barrier function and cutaneous blood flow.

Keywords: Psoriasis; age groups; Republic of Uzbekistan; clinical characteristics; psoriasis severity; PASI; BSA; microcirculation; skin barrier; transepidermal water loss; TEWL; inflammation; dermatology; epidermis; keratinocytes.

Introduction

Psoriasis is one of the most common chronic inflammatory dermatoses. The disease is multifactorial and develops through a complex interaction of genetic predisposition, immunological mechanisms, and environmental factors. The clinical presentation of psoriasis is characterized by erythematous and scaly lesions, pruritus of varying intensity, skin dryness, and impaired physiological skin functions [1-5].

A clinico-physiological approach to psoriasis makes it possible to consider the disease not only as a localized skin disorder but also as a systemic immune-mediated inflammatory process. Important mechanisms include disturbances of cutaneous microcirculation, epidermal barrier function, and the regulation of cellular turnover. Age-related features are of particular interest. Psoriasis may develop in childhood, adolescence, young adulthood, middle age, or older age. Across these periods, the immune response, vascular function, rate of epidermal regeneration, and ability of the skin to retain moisture change. Therefore, assessment of age-related features may contribute to a deeper understanding of disease mechanisms.

The relevance of studying psoriasis is determined by its chronic relapsing course, substantial impact on patients' quality of life, and the need for long-term treatment. The disease can occur at any age,

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although clinical characteristics and the intensity of the pathological process may differ between age groups. Contemporary concepts regard psoriasis as an immune-mediated inflammatory process involving cells of the innate and adaptive immune systems, keratinocytes, dendritic cells, and T lymphocytes. The IL-23/IL-17 axis is considered one of the central mechanisms sustaining psoriatic inflammation [1,4,5,10].

In parallel with immune alterations, psoriasis is associated with changes in the structure and function of the epidermal barrier. Accelerated keratinocyte turnover, alterations in stratum corneum lipid composition, and disturbed organization of epidermal structures may contribute to increased transepidermal water loss. Transepidermal water loss (TEWL) is an objective parameter of skin barrier status; an elevated value may indicate impaired epidermal barrier function. In psoriasis, TEWL may vary according to lesion location and inflammatory severity, the degree of skin dryness, and other factors [12-14].

Cutaneous microcirculation is also important. Psoriatic lesions are characterized by marked vascular changes, including dilation of capillaries in the papillary dermis and increased vascularization. These processes are directly related to the development of characteristic clinical manifestations of the disease. Age-related changes in the skin also affect its physiological state. With aging, changes occur in epidermal thickness, stratum corneum lipid composition, vascular reactivity, regenerative processes, and the ability of the skin to maintain optimal hydration.

In the context of the Republic of Uzbekistan, investigation of these relationships is of additional interest. Climatic characteristics, the level of solar irradiance, seasonal variations in temperature and humidity, dietary patterns, and lifestyle may represent additional factors capable of influencing skin condition and the course of chronic dermatoses.

For a clinical investigation, it would be appropriate to form age-stratified groups of patients with a confirmed diagnosis of psoriasis. Allocation of participants may take into account age, sex, disease duration, clinical phenotype, extent of skin involvement, and the presence of comorbidities. Psoriasis severity may be objectively characterized using the Psoriasis Area and Severity Index (PASI), which evaluates the extent of skin involvement and the severity of erythema, induration, and scaling [6,8]. Assessment of body surface area (BSA) affected by psoriasis may be used as an additional measure. To determine the impact of the disease on quality of life, the Dermatology Life Quality Index (DLQI) may be employed [7]. A clinico-dermatological examination should include assessment of lesion distribution and morphology, degree of scaling, induration, erythema, pruritus intensity, nail involvement, and scalp involvement. Non-invasive measurement of transepidermal water loss (TEWL) may be used to assess skin barrier function. This parameter reflects the amount of water passing through the epidermis and evaporating from the skin surface.

Skin hydration may additionally be assessed by corneometry. These measurements provide supplementary characterization of the stratum corneum. Cutaneous microcirculation may be investigated using laser Doppler flowmetry, capillaroscopy, and other non-invasive methods of assessing cutaneous blood flow. Where appropriate, measurements may be obtained both from psoriatic lesions and from relatively unaffected skin.

Statistical analysis may include descriptive statistics, comparison of mean values between age groups, correlation analysis, and assessment of the statistical significance of observed differences. The

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specific statistical tests should be selected according to the distribution of the data and the study design.

The influence of age on physiological measurements should be considered explicitly. For example, TEWL and skin hydration depend not only on the presence of psoriasis but also on age, sex, anatomical site, ambient temperature, and environmental humidity. Therefore, when conducting a clinical study across different age groups, examination conditions should be standardized. Measurements should be performed at a stable room temperature and relative humidity after an adequate acclimatization period for each participant.

Analysis of contemporary scientific evidence suggests that psoriasis may exhibit age-related differences in its clinical course. However, age should not be regarded as an independent factor that completely determines disease severity. Clinical evolution reflects the combined influence of immunological, genetic, metabolic, and environmental factors. In younger patients, the disease may be characterized by more pronounced inflammatory activity of the skin. Genetic predisposition, psychological stress, infections, and other triggers may be important contributors.

In middle-aged patients, psoriasis may be additionally influenced by metabolic abnormalities, excess body weight, cardiovascular disease, and other comorbid conditions. Therefore, patient assessment should be comprehensive.

In older age, physiological characteristics of the skin become particularly important. With aging, the skin's ability to retain moisture decreases, the lipid composition of the stratum corneum changes, epidermal regeneration slows, and vascular reactivity changes. Against this background, impairment of the skin barrier may become more pronounced.

TEWL is one of the important indicators of skin condition. When the structure of the stratum corneum is disturbed, the amount of water lost through the skin surface increases. In patients with psoriatic lesions, TEWL may be higher than in unaffected skin. Higher TEWL is generally associated with impaired barrier function [12-14].

Increased TEWL has practical significance because impaired barrier function contributes to skin dryness and may intensify sensations of tightness and discomfort. This may increase the need for supportive measures aimed at restoring the skin barrier. Particular attention should also be paid to microcirculation. Psoriatic lesions demonstrate marked vascular changes in the dermis. Capillary dilation and alterations in blood flow are associated with inflammatory mechanisms and contribute to the clinical phenotype of psoriasis.

Changes in microcirculation may be considered not only a local manifestation of psoriatic inflammation but also a physiological indicator potentially related to disease activity. However, interpretation of these measurements should take into account ambient temperature, emotional state, physical activity, and other factors capable of changing cutaneous blood flow. Comparison of disease-severity measures with physiological skin parameters may suggest an association between the intensity of inflammation and impairment of barrier function. More extensive skin involvement may potentially be accompanied by greater changes in hydration and TEWL.

At the same time, this relationship is not absolute. Even among patients with similar clinical severity of psoriasis, physiological skin parameters may differ substantially. This finding underscores the need for an individualized approach

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Physiological characteristics of the skin may influence the interpretation of non-invasive measurements in patients with psoriasis. Age-related changes can modify baseline TEWL, hydration, epidermal barrier competence, and vascular responses. Thus, differences between age groups should not automatically be attributed to psoriasis itself; they may reflect the interaction between disease-related changes and normal age-associated physiological variation.

The combined assessment of clinical severity, cutaneous microcirculation, and epidermal barrier function may provide a more comprehensive clinico-physiological profile of patients with psoriasis. Such an approach can complement conventional dermatological assessment by integrating lesion characteristics with objective physiological parameters.

At the level of individual patients, TEWL, hydration, and microcirculatory measurements should be interpreted in the context of lesion location and morphology, treatment status, ambient conditions, and other potential confounders. Standardization of measurement conditions is therefore essential for meaningful comparison between age groups and between affected and unaffected skin.

The resulting data could be used to develop a comprehensive clinico-physiological profile of the patient. This approach allows simultaneous consideration of the clinical signs of psoriasis, disease severity, the state of cutaneous microcirculation, and the functional condition of the epidermal barrier.

For the Republic of Uzbekistan, an important research direction is the development of a regional clinico-physiological database on psoriasis that takes into account the age, climatic, and socio-demographic characteristics of the population. Such studies may contribute to improving individualized monitoring and the comprehensive management of patients with chronic dermatoses.

The study of psoriasis across different age groups is of substantial scientific and practical interest. Psoriasis is characterized by a complex interaction of immune-mediated inflammatory, vascular, and epidermal mechanisms. Age-related changes in the skin may modify the clinical manifestations of psoriasis and the characteristics of skin-barrier recovery. At the same time, the intensity of the pathological process is determined not only by age but also by disease duration, genetic predisposition, comorbidities, lifestyle, and environmental exposures.

Assessment of cutaneous microcirculation and epidermal barrier function expands the possibilities of conventional clinical examination. Of particular interest is the simultaneous use of clinical severity indices and objective non-invasive physiological methods [6-8,12-14].

A standardized age-stratified approach, with appropriate control of environmental and methodological factors, may facilitate more reliable identification of age-related patterns in the course of psoriasis in the population of Uzbekistan.

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