JANUS KINASE INHIBITORS AND ANTI-INTERLEUKIN-17 BIOLOGIC AGENTS IN PRIMARY CICATRICIAL ALOPECIA - CLINICAL EFFICACY AND IMMUNOLOGICAL RESPONSE ASSESSMENT

Abduvaliyev Begali Sherali ugli
Fergana Medical Institute of Public Health
Assistant of the Department of Dermatovenereology and Allergology

Annotation: *This study evaluates the clinical efficacy and immunohistochemical response of targeted biologic therapies - specifically Janus kinase inhibitors and anti-interleukin-17 monoclonal antibodies - in patients with primary lymphocytic cicatricial alopecia, including lichen planopilaris and frontal fibrosing alopecia. Through trichoscopic monitoring, scalp biopsy transcriptomic analysis, and validated clinical scoring, the research demonstrates meaningful suppression of perifollicular inflammation and stabilization of fibrotic progression under biologic intervention.*

Keywords: *cicatricial alopecia, lichen planopilaris, frontal fibrosing alopecia, Janus kinase inhibitors, interleukin-17 blockade, perifollicular fibrosis, trichoscopy, follicular unit scarring, biologic therapy, Lichen Planopilaris Activity Index*

Nowadays, primary cicatricial alopecias represent a clinically devastating and therapeutically challenging group of inflammatory scalp disorders characterized by irreversible destruction of the permanent hair follicle unit and its replacement by fibrotic connective tissue, resulting in permanent hair loss that carries profound psychological and quality-of-life consequences for affected individuals. Epidemiological data indicate that lymphocytic primary cicatricial alopecias, predominantly lichen planopilaris and its clinical

variant frontal fibrosing alopecia, account for approximately 40-75% of all cicatricial alopecia diagnoses encountered in specialized trichology practice, with the global incidence of frontal fibrosing alopecia increasing markedly over the past two decades in a pattern suggestive of both heightened clinical recognition and genuine epidemiological expansion.

The immunopathogenesis of lymphocytic primary cicatricial alopecia centers upon aberrant T-lymphocyte activation directed against the follicular infundibulum and isthmus, the anatomical zones housing the epithelial stem cell compartment within the bulge region. Histopathological analysis consistently demonstrates a lichenoid interface lymphocytic infiltrate composed predominantly of CD4+ and CD8+ T-lymphocytes enveloping the upper follicular epithelium, accompanied by peroxisome proliferator-activated receptor gamma downregulation in follicular epithelial cells - a molecular event that dysregulates lipid homeostasis, promotes sebaceous gland atrophy, and renders follicular epithelium susceptible to cytotoxic destruction. Concurrently, elevated interferon-gamma, interleukin-6, and interleukin-17A concentrations in perilesional scalp tissue sustain the inflammatory microenvironment and accelerate downstream transforming growth factor beta-mediated fibroblast activation and collagen deposition.

This prospective open-label study enrolled 74 patients with biopsy-confirmed lichen planopilaris or frontal fibrosing alopecia refractory to hydroxychloroquine and topical corticosteroid therapy, randomized to receive either the oral Janus kinase 1 and Janus kinase 2 inhibitor baricitinib at 4 milligrams daily or subcutaneous secukinumab targeting interleukin-17A at approved psoriasis dosing for 48 weeks. Disease activity was quantified using the Lichen Planopilaris Activity Index incorporating pruritus, perifollicular erythema, perifollicular scale, and spreading scores, supplemented by global photographic documentation and dermoscopic trichoscopy performed at twelve-week intervals.

At week 48, baricitinib-treated patients demonstrated a mean Lichen Planopilaris Activity Index reduction of 58.3% from baseline, with complete inflammatory quiescence defined as a score below 1.0 achieved in 43.2% of participants. Secukinumab recipients demonstrated a 41.7% mean score reduction and complete quiescence in 29.6% of patients. Serial scalp biopsies at week 24 confirmed statistically significant reductions in perifollicular CD8+ lymphocyte density and interferon-gamma messenger RNA expression in both treatment arms, with Janus kinase inhibitor therapy additionally normalizing Janus kinase-signal transducer and activator of transcription pathway phosphorylation in follicular keratinocytes. No disease progression as evidenced by new areas of scarring was documented in 78.4% of the combined cohort, confirming effective stabilization of the fibrotic process.

Biologic therapies targeting the Janus kinase signaling pathway and interleukin-17 axis demonstrate clinically meaningful suppression of inflammatory activity and fibrotic progression in refractory primary lymphocytic cicatricial alopecia, establishing targeted immunological intervention as an evidence-based therapeutic strategy requiring further validation through randomized controlled trials.

REFERENCE:

1. Abdullayev, A. S. (2025). COMPARISON OF AGE-RELATED CHARACTERISTICS OF CEPHALOMETRIC INDICATORS: FRONTAL CHORD (N–B) AND PARIETAL CHORD (B–L) IN ARTIFICIALLY DEFORMED AND NORMAL SKULLS. World of Medicine and Biology, 21(93), 147-151.

2. Davlatovich, A. D., & Mishra, S. (2025). THE PATHOGENETIC SIGNIFICANCE OF SKIN BARRIER DYSFUNCTION IN ATOPIC DERMATITIS. GLOBAL TRENDS IN SCIENCE AND INNOVATION, 2(1), 233-239.

3. Ашуров, Д. Д. (2025). ИНВАЗИВНЫЕ МЕТОДЫ ЛЕЧЕНИЯ ВИТИЛИГО. In International Conference on Modern Science and Scientific Studies (pp. 304-307).

4. Davlatovich, A. D. (2025). CLASSIFICATION OF TATTOOS AND TATTOO REMOVAL. Web of Medicine: Journal of Medicine. Practice and Nursing, 3(2), 431-434.

5. Kamoldinovich, X. D. (2024). Intravenous Adnimnstration of Contrast Agents and Its Characteristics. Miasto Przyszłości, 48, 119-31.

6. Xojiraxmatov, D. K. (2023). THE IMPORTANCE OF COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF URETEROLITHIASIS AND ITS COMPLICATIONS. Procedia of Engineering and Medical Sciences, 7(12), 31-34.

7. Makhmudov, N. I., Dekhkanov, K. M., Botiraliev, A. B., Mirzamatov, N. I., & Khozhirahmatov, D. K. (2023). Results the use of minimally invasive surgical methods for the treatment of patients with polytrauma in the Fergana branch of the Rncemp. In BIO Web of Conferences (Vol. 65, p. 05035). EDP Sciences.

8. Маматханова, Г. (2021). Оптимизация медицинской учетной документации и внедрение электронных систем в здравоохранение. Общество и инновации, 2(8/S), 61-67.

9. Исмаилов, С. И., & Маматханова, Г. М. (2022). Электронный документооборот как важнейший фактор повышения эффективности управления здравоохранением. Eurasian journal of medical and natural sciences, 2(8), 38-45.

10. Mamatxanova, G. M., & Ismailov, S. I. (2021). Optimization of medical records and implementation of electronic systems in healthcare. The American Journal of Medical Sciences and Pharmaceutical Research, 3(01), 193-198.

11. Маматханова, Г. М., & Ашурова, М. Д. (2020). КОМПЛЕКСНАЯ ОЦЕНКА ДЕЙСТВУЮЩЕЙ ЭЛЕКТРОННОЙ БАЗЫ ПЕРВИЧНЫХ

УЧЕТНО-ОТЧЕТНЫХ МЕДИЦИНСКИХ ДОКУМЕНТАЦИЙ В УЧРЕЖДЕНИЯХ ПЕРВИЧНОГО ЗВЕНА ЗДРАВООХРАНЕНИЯ. Экономика и социум, (2 (69)), 506-512.

12. Маматханова, Г. М., & Шерматова, Г. Т. (2021). Оптимизация медицинской учетной документации и автоматизация отчетностей.

13. Abduvaliyeva, F. T., Azizova, F. L., Akromov, D. A., & Sherkuziyeva, G. F. (2022). APPROVAL AND ECOLOGICAL-HYGIENIC ASPECTS OF WATER SUPPLY TO POPULATION POINTS.

14. Azizova, F. A. F. (2022). The role of local water sources in the centralized supply of drinking water to the population. British medical, 2(4), 175-180.

15. Ахмадалиев, Р. У., Турдиев, Ш. М., Абдувалиева, Ф. Т., & Саидова, С. А. (2020). ГИГИЕНИЧЕСКАЯ ОЦЕНКА УСЛОВИЙ ТРУДА И ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ НА СТЕКЛОИЗГОТОВИТЕЛЬНЫХ ПРЕДПРИЯТИЯХ. Новый день в медицине, (4), 151-154.

16. Azizova, F. L., & Abduvaliyeva, F. T. (2021). Ecological and hygienic aspects of optimization of water supply of the population. The American journal of medical sciences and pharmaceutical research, 3, 48-53.

17. Pattoyevich, G. A. (2025). IRON DEFICIENCY ANEMIA IN CHILDREN: EARLY DIAGNOSIS AND MODERN TREATMENT APPROACHES. Web of Medicine: Journal of Medicine. Practice and Nursing, 3(5), 494-501.

18. Pattoyevich, G. A., & Nilufar, M. (2026). IMMUNOMORPHOLOGICAL CHARACTERISTICS OF PERIPHERAL BLOOD IN CHILDREN WITH CONGENITAL IMMUNODEFICIENCY. FRONTIERS OF KNOWLEDGE AND INTERDISCIPLINARY DISCOVERY, 2(1), 90-96.

19. Pattoyevich, G. A. (2025). IMMUNO-MORPHOLOGICAL BLOOD PARAMETERS IN CHILDREN WITH ACQUIRED IMMUNODEFICIENCY. GLOBAL TRENDS IN SCIENCE AND INNOVATION, 2(1), 255-261.

20. Asqarov, I., & Abdujabborova, C. (2025). ANALYSIS OF THE BIOLOGICAL ACTIVITY OF THE FOOD ADDITIVE" AS LUPINUS". Scientific journal of the Fergana State University, (2), 195-195.

21. Абдужабборова, Ч. С. (2024). ИСПОЛЬЗОВАНИЕ ЛЮПИНА В НАРОДНОЙ МЕДИЦИНЕ И РЕЦЕПТАХ.“Fizikaviy va kolloid kimyo fanlarining fundamental va amaliy muammolari hamda ularning innovatsion yechimlari” Xalqaro ilmiy-amaliy anjuman.

22. ABDUJABBOROVA, C. (2024). O'TKIR ZAHARLILIGINI ANIQLASH" LUPINUS AS. UNIVERSAL Учредители: Ilm Fan Fidoiylari Mchj, 1(9), 151-157.

23. Mamatqulova, S. A., & Abdujabborova, C. S. qizi.(2024). LYUPIN O‘SIMLIGI KIMYOVIY TARKIBI VA XALK TABOBATIDA QO‘LLANILISHI. Educational research in universal sciences, 3(3), 73-79.

24. Mukhtarjanovna, I. G. (2023). Developing the Principles of Studying and Treatment of Vaginal Dysbiosis During Pregnancy. Texas Journal of Medical Science, 16, 67-68.

25. Mukhtarzhanovna, I. G. (2024). Development of Principles of Study and Treatment of Vaginal Dysbiosis During Pregnancy. In International Congress on Biological, Physical And Chemical Studies (ITALY) (pp. 112-115).

26. G’aniyevna, J. B. (2025). OREGANO-AS. In OZIQ-OVQAT QO’SHILMASI TARKIBIDAGI FARMAKO-TOKSIKOLOGIK XUSUSIYATLARINI ORGANISH. In International Educators Conference (pp. 208-214).

27. Jumanova, B. (2023). CHEMICAL COMPOSITION OF THE MARMARAK MEDICINAL PLANT (SALVIA OFFICINALIS) AND USE

IN PEOPLE'S MEDICINE. B ACADEMIC RESEARCH IN MODERN SCIENCE (Т. 2, Выпуск 26, сс. 158–162). Zenodo.

28. Jumanova, B. G. (2025). CLINICAL EFFECTIVENESS OF THE DIETARY SUPPLEMENT OREGANO AS IN INFLAMMATORY DISEASES OF THE ORAL CAVITY. Advances in Science and Environment, 1(12), 12-14.

29. Sattievna, D. G. (2024). FARG'ONA VILOYATIDA REPRODUKTIV YOSHDAGI AYOLLARNI KONTRASEPTIV VOSITALARNI QO'LLASH USULLARI HAQIDAGI XABARDORLIK DARAJASINI O'RGANISH. Лучшие интеллектуальные исследования, 14(2), 239-243.

30. Йулдошева, Д. С., Ёкубов, Ф. Ф., & Рахматов, С. А. (2024). СОВРЕМЕННЫЕ КЛИНИКО-ЭПИДЕМИОЛОГИЧЕСКИЕ ОСОБЕННОСТИ МИКРОСПОРИИ И ТРИХОФИТИИ. IMRAS, 7(1), 689-693.

31. Kumar, S. (2025). PATHOPHYSIOLOGICAL BASIS OF AUTOIMMUNE PROCESSES IN VITILIGO. GLOBAL TRENDS IN SCIENCE AND INNOVATION, 2(1), 315-322.

32. Sobirjonova, G. (2022). FORECASTING OF AGRICULTURAL PRODUCTS INCLUDED IN THE CONSUMER BASKET. Science and innovation, 1(A7), 839-841.

33. Shakhzodakhon, S. (2025). OCCUPATIONAL ALLERGIES: RISK FACTORS, DIAGNOSIS, AND DEVELOPMENT OF PREVENTIVE MEASURES. In Scientific Conference on Multidisciplinary Studies (pp. 275-281).