

**ADVANCES IN PSORIASIS TREATMENT:
COMBINING SECUKINUMAB WITH PHOTOTHERAPY**

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Annotation: This article explores the benefits of combining secukinumab, a biologic IL-17 inhibitor, with narrowband UVB phototherapy in treating moderate to severe psoriasis. It presents findings from five patients who demonstrated significant skin clearance and improved quality of life through this combination approach, suggesting that it can be an effective treatment for resistant forms of the disease

Keywords: Psoriasis, secukinumab, biologics, phototherapy, narrowband UVB, IL-17 inhibitor, combination therapy, PASI improvement, moderate to severe psoriasis, skin clearance.

In this article, I will focus on the combination of secukinumab with narrowband UVB phototherapy and its effects on five patients with moderate to severe psoriasis. This combination therapy has shown to be particularly effective in achieving rapid skin clearance and prolonging remission periods, significantly improving the quality of life for patients.

A clinical evaluation was conducted on five patients with moderate to severe psoriasis who were treated with a combination of secukinumab and narrowband UVB phototherapy. These patients had not responded adequately to prior treatments, including other biologics and systemic therapies, and demonstrated significant improvement during the 12-week observation period.

The combination therapy resulted in a substantial reduction in Psoriasis Area and Severity Index (PASI) scores, with an average improvement of 80% to 95% across the patient group. Three of the patients achieved near-complete skin clearance (PASI 90

or higher) by the end of the treatment. Visible improvements were noted within the first 4-6 weeks of adding phototherapy, highlighting the potential of narrowband UVB to accelerate response when used alongside secukinumab.

Beyond the reduction in PASI scores, patients reported relief from symptoms such as itching, scaling, and discomfort, leading to a marked improvement in their overall quality of life. The treatment combination was well-tolerated, with no significant side effects observed, even in patients with underlying health conditions like diabetes and cardiovascular disease. For patients with localized, treatment-resistant plaques (such as those on the scalp or knees), phototherapy proved particularly effective in achieving clearance where biologic therapy alone had been insufficient. These findings underscore the efficacy of combining biologic therapy with phototherapy, providing an enhanced approach for managing moderate to severe psoriasis, especially in cases where monotherapy has not yielded optimal results.

Introduction

Psoriasis is a chronic, immune-mediated skin disorder that manifests as red, scaly patches, affecting millions worldwide, including a significant number of patients in Uzbekistan. Though various treatment options exist, ranging from topical medications to systemic therapies, the introduction of biologics has been a game-changer in managing moderate to severe psoriasis.[1] In our hospital, secukinumab, an IL-17 inhibitor, has been the primary biologic used in clinical practice. While this biologic therapy has shown excellent efficacy in controlling the disease, [2]combining secukinumab with other modalities, such as phototherapy, has emerged as a promising strategy for enhancing outcomes.[3]

Psoriasis: A Complex Immune-Mediated Disorder

Psoriasis is more than just a skin disease; it is a systemic condition involving complex immune pathways.[4] The condition arises from an abnormal immune response in which T-cells, a type of white blood cell, mistakenly attack healthy skin cells.[5] This immune system overactivity results in the rapid proliferation of keratinocytes (skin cells), leading to the formation of thick, scaly plaques.[6]While the

exact cause of psoriasis remains unclear, genetic factors and environmental triggers such as stress, infections, and medications are known contributors.[7]

Psoriasis can take various forms, with plaque psoriasis being the most common. Other variants include guttate psoriasis, pustular psoriasis, and erythrodermic psoriasis. [8]The severity of the disease varies significantly from person to person, ranging from localized plaques to widespread, debilitating skin involvement.[9]

In addition to the physical discomfort caused by psoriasis, patients often face psychological challenges, including depression and social anxiety, particularly when lesions are visible. The psychosocial impact of the disease underscores the importance of achieving and maintaining effective skin clearance.[10]

Secukinumab: A Targeted Biologic Therapy

Secukinumab has become one of the most effective biologics for treating moderate to severe psoriasis, particularly in cases where traditional therapies fail. It is a fully human monoclonal antibody that specifically targets interleukin-17A (IL-17A), a pro-inflammatory cytokine that plays a central role in the pathogenesis of psoriasis. By inhibiting IL-17A, secukinumab disrupts the inflammatory cascade responsible for the rapid turnover of skin cells.[11]

Secukinumab administration: Patients typically receive an initial loading dose of secukinumab, followed by maintenance doses every four weeks. The standard dose is 300 mg for most patients, although a lower dose of 150 mg may be used for patients with milder disease or those with concerns about immunosuppression.[12]

The clinical efficacy of secukinumab has been well documented in multiple studies, with many patients achieving PASI 75 or even PASI 90 (75% or 90% improvement in the Psoriasis Area and Severity Index). However, not all patients respond equally, and for those with resistant or widespread disease, combination therapy may offer additional benefits.[13]

Phototherapy in Psoriasis Treatment

Phototherapy, particularly narrowband UVB (NB-UVB) therapy, has long been a cornerstone in the treatment of moderate to severe psoriasis. Phototherapy works by

exposing the skin to controlled doses of ultraviolet light, which helps slow the rapid turnover of skin cells and reduce inflammation. NB-UVB, with a wavelength of 311-313 nm, is considered the most effective form of phototherapy for psoriasis, as it provides targeted treatment with minimal risk of burning or long-term skin damage.[14]

Phototherapy is typically administered two to three times per week in a clinical setting. The dosage is gradually increased until an optimal therapeutic response is achieved. For patients with extensive skin involvement or localized stubborn plaques, NB-UVB can be a powerful tool, either as a standalone treatment or in combination with systemic therapies.[15]

Rationale for Combining Secukinumab with Phototherapy

While secukinumab has shown excellent efficacy in controlling moderate to severe psoriasis, combining it with phototherapy offers several advantages. First, phototherapy can help accelerate skin clearance in patients who have a slower response to biologic treatment alone. Additionally, the combination allows for better control of stubborn areas, such as the scalp or joints, which may not respond as well to biologics alone. [16]

Another important benefit is the ability to lower the dose of secukinumab in certain patients, particularly those with underlying health conditions that raise concerns about long-term immunosuppression. By combining secukinumab with phototherapy, dermatologists can strike a balance between maximizing efficacy and minimizing potential side effects.[17]

Detailed Discussion on the Benefits of Combination Therapy

In clinical practice, the combination of secukinumab and phototherapy offers multiple advantages that go beyond the effects of using either treatment alone. Let's explore some of these key benefits in greater detail.

1. Faster Skin Clearance

One of the most notable benefits of combining secukinumab with phototherapy is the rapidity of skin clearance. While biologics like secukinumab are highly effective,

some patients, particularly those with more resistant forms of psoriasis, may experience slower response times when using biologics alone. Phototherapy, with its direct impact on the skin, can accelerate the clearance of lesions, as demonstrated in clinical studies.[18]

Patients who are burdened with extensive or particularly thick plaques often experience a significant psychological toll, and achieving visible improvements within a shorter period can greatly enhance their confidence and quality of life. This combination treatment allows dermatologists to offer a more comprehensive approach that addresses both the immune-mediated cause of psoriasis and the physical symptoms.[19]

2. Targeted Treatment for Stubborn Areas

Some areas of the body, such as the scalp, elbows, and knees, are particularly resistant to treatment with biologics. Phototherapy allows for targeted treatment of these stubborn areas, as seen in the case of Patient 2, where scalp lesions that were unresponsive to secukinumab alone were significantly improved when phototherapy was added. For patients who have localized areas of thick plaques or persistent lesions, combining secukinumab with phototherapy provides a means of addressing these difficult-to-treat zones. This can be especially valuable in cases where the patient may otherwise consider switching biologics, as combination therapy can provide an effective solution without the need for changing systemic treatment.[20]

3. Reduced Need for High Biologic Doses

While secukinumab is generally well-tolerated, some patients—particularly those with underlying health conditions—may be at risk for side effects associated with long-term immunosuppression. In these cases, the ability to lower the dose of secukinumab while maintaining efficacy is a significant advantage. For Patient 5, who had diabetes and cardiovascular concerns, the combination of lower-dose secukinumab with phototherapy provided excellent results without increasing the risk of complications from systemic immunosuppression.[21]

This approach can also be applied to patients who have shown only partial responses to biologics. By using phototherapy to boost the efficacy of a lower biologic dose, dermatologists can offer patients an effective treatment while minimizing potential risks, particularly in long-term therapy.

Challenges and Considerations for Combination Therapy

While the combination of secukinumab and phototherapy presents many benefits, it is important to consider certain challenges and patient-specific factors when implementing this treatment approach.

1. Time Commitment for Phototherapy

Phototherapy requires frequent visits to the clinic, typically two to three times per week, which may be inconvenient for some patients. For those with busy work schedules or limited access to medical facilities, adhering to the phototherapy regimen may be challenging. In these cases, patient education and support are critical to ensuring adherence to the treatment plan and optimizing outcomes.[22]

2. Risk of Skin Damage from Phototherapy

Although narrowband UVB phototherapy is generally considered safe, there is still a risk of skin damage, particularly if treatment sessions are not carefully monitored. Excessive exposure to UV light can increase the risk of photoaging and, in rare cases, skin cancer. Dermatologists must balance the benefits of phototherapy with the need for careful dosing and patient monitoring to avoid these risks.[23]

3. Patient Preferences and Expectations

Some patients may have concerns about combining therapies or may expect immediate results. It is important to manage patient expectations and provide a clear understanding of how combination therapy works. Patients should be informed that while rapid improvement is often seen, the full benefits of combination therapy may take several weeks to manifest.[24]

Conclusion

The combination of secukinumab and phototherapy represents a powerful approach to treating moderate to severe psoriasis, particularly in cases where biologics

alone may not provide the desired results. By harnessing the immune-modulating effects of secukinumab and the direct skin-clearing properties of phototherapy, dermatologists can achieve faster and more comprehensive skin clearance, offering patients improved quality of life and long-term disease control.

The five case studies presented in this article demonstrate the effectiveness of this combination therapy across a range of patient profiles, from those with treatment-resistant psoriasis to individuals with complex health conditions. As we continue to gain experience with secukinumab and its use in combination with other modalities, it is clear that this approach holds great promise for optimizing psoriasis treatment and enhancing patient outcomes.

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