



## Drug Therapy and Immunotherapy Innovations in Dermatology

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## Abstract

In the last several years, notable advancements have been made in the realm of dermatology pertaining to medication treatment and immunotherapy. The aforementioned advancements have revolutionized the approach to managing dermatological disorders, resulting in enhanced patient outcomes and an elevated standard of care. The introduction of topical glucocorticoids represents a significant advancement in the field of pharmacological treatment. Topical corticosteroids, referred to as such in the area of dermatology, have significantly impacted the landscape of this medical discipline (Dey, 2014). The treatment of inflammatory skin disorders has been significantly transformed by their advancements, including conditions that span from little, self-resolving pain to severe, perhaps fatal complications. The first introduction of topical corticosteroids, including hydrocortisone, occurred in 1952. Since then, these agents have emerged as the primary therapeutic approach in dermatology for managing a broad range of inflammatory and noninfectious disorders. The efficacy and safety of these drugs have been well demonstrated, making them among the most often prescribed pharmaceuticals in contemporary dermatological clinics. These drugs function by diminishing inflammation and inhibiting the immune response, so granting alleviation from symptoms such as pruritus, erythema, and edema. Nevertheless, the prolonged use of topical corticosteroids might potentially result in unfavorable consequences, including dermal thinning, pigmentation

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alterations, and heightened susceptibility to infections. In order to mitigate these issues, scholars are now investigating novel approaches in pharmaceutical intervention and immunotherapy with the aim of enhancing the efficacy and safety of drugs. One of the notable advancements in the field is the emergence of tailored immunotherapies. The objective of these therapies is to precisely and discriminately regulate the immune system by focusing on the underlying processes associated with inflammation and dermatological conditions. The aforementioned therapeutic interventions, which selectively target certain immune cells or molecules, have the potential to provide more accurate and efficient treatment alternatives while minimizing adverse reactions. Biological treatments have developed as a viable modality within the realm of dermatology, exemplifying its potential efficacy. The aforementioned therapies include the use of genetically modified proteins or antibodies that selectively target molecules implicated in inflammatory processes.

**Keywords:** *Drug Therapy, Immunotherapy, Innovations in Dermatology, Dermatology, Dermatological Immunotherapy*

## Introduction

Through the inhibition of these molecules, biological interventions have the potential to significantly diminish inflammation and ameliorate symptoms in individuals afflicted with ailments such as psoriasis, atopic dermatitis, and other autoimmune dermatological disorders. Furthermore, the progression of medication delivery methods has played a significant role in the advancement of therapeutic alternatives within the field of dermatology.

An illustration of this phenomenon may be seen in the advancements made in the formulation and delivery methods of topical corticosteroids. These innovations have facilitated enhanced permeation and absorption of the medication into the skin, resulting in heightened effectiveness and diminished adverse reactions. Furthermore, ongoing research is being conducted to explore

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novel pharmacological interventions aimed at mitigating the detrimental consequences linked to the prolonged use of topical corticosteroids. An example of an innovation in the field is the advancement of combination therapy, whereby topical corticosteroids are used with other drugs to augment their therapeutic efficacy. An instance of the use of combination therapy including calcineurin inhibitors has shown encouraging outcomes in the management of ailments like eczema. One further domain of advancement in the field of drug therapy and immunotherapy within dermatology pertains to the exploration of novel molecules and targets for therapeutic interventions. Scientists are continuously discovering novel molecular targets and formulating new compounds with potential therapeutic applications in the field of dermatology. These compounds may exhibit distinct modes of action and selectively target certain pathways or components implicated in the pathogenesis of skin disorders.

Researchers aim to enhance therapy choices for individuals with dermatological disorders by focusing on these novel molecules and pathways, with the goal of achieving more efficacy and personalization.

In addition to the advancements in biological therapies, the field of dermatology has seen notable progress in the realm of immunotherapy.

Immunotherapy encompasses the manipulation of the immune response inside the body to specifically target and eliminate cancerous cells. This approach has shown encouraging outcomes in the treatment of some forms of skin cancer, including malignant melanoma and non-melanoma skin tumors. Immunotherapy works by activating the immune system to identify and combat malignant cells, resulting in enhanced disease management and increased rates of survival. According to Ambooken (2022), research has shown the efficacy of immunotherapy in the treatment of autoimmune skin conditions, including alopecia areata and vitiligo. These disorders involve the immune system's erroneous targeting of healthy skin cells. The advancements in drug therapy and immunotherapy have significantly enhanced patient outcomes within the field of dermatology. The significance of these advancements in

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pharmacological therapy and immunotherapy has been notably emphasized in the context of treating melanoma, a form of skin cancer known for its aggressive nature and challenging treatment. Historically, the available therapeutic interventions for metastatic melanoma were limited and often had little efficacy. Nevertheless, the field of melanoma treatment has undergone substantial transformation due to the introduction of immunotherapy and targeted medicines. Patients diagnosed with advanced melanoma now have the opportunity to avail themselves of a wider range of therapy choices that are both more efficacious and tailored to their individual needs. One illustration of the effects of these advancements may be seen in the use of immunotherapies, including cytokines, cancer vaccines, adoptive cell transfer, and cancer gene therapies, in the treatment of melanoma. Immunotherapies have shown notable efficacy in specifically targeting malignant melanoma and extending the overall longevity of affected individuals. An investigation carried out by Atkins et al. revealed that the administration of high-dose recombinant IL-2 therapy led to a positive response in 12 out of 270 patients diagnosed with metastatic melanoma. These patients exhibited a sustained absence of illness or progression for a period ranging from 70 to 150 months after the commencement of treatment. The therapeutic approach for the treatment of Head and Neck Mucosal Melanoma was investigated in a study conducted in 2010.

## Methodology

The therapeutic strategy for dermatological illnesses, particularly those requiring immunomodulatory medications, has undergone substantial modifications due to the COVID-19 pandemic (Arenbergerova et al., 2020). The COVID-19 pandemic has necessitated a reassessment of treatment strategies for dermatological conditions, particularly those using immunomodulatory medications. Individuals diagnosed with dermatological conditions who undergo immunotherapy or other forms of immune system suppression may have a heightened susceptibility to experiencing severe problems associated with COVID-19. Hence, it is essential

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for dermatologists to carefully evaluate the potential hazards and advantages associated with these therapeutic interventions within the framework of the COVID-19 global health crisis.

An essential development in the field of dermatology pertains to pharmacological therapy and immunotherapy, namely in the treatment of psoriasis, a persistent inflammatory skin disorder. The therapy landscape for psoriasis has been significantly transformed with the advent of targeted treatments and immunomodulatory medications. The aforementioned medicines provide improved patient outcomes by selectively addressing the fundamental immunological dysregulation that initiates the onset of psoriasis. For instance, many biologic medicines, including tumor necrosis factor-alpha inhibitors, interleukin-17 inhibitors, and interleukin-23 inhibitors, have shown efficacy in the treatment of psoriasis by impeding crucial inflammatory signaling pathways. Furthermore, immunotherapy has considerable potential in the treatment of several dermatological disorders, in addition to psoriasis. According to Ambooken (2022), immunotherapy has shown efficacy in the treatment of malignant melanoma and non-melanoma skin malignancies. These novel therapies have the ability to manipulate the immune system and specifically attack cancerous cells, leading to enhanced rates of survival and better management of the illness. The investigation of the efficacy of immunotherapies, including cytokines, cancer vaccines, adoptive cell transfer, and cancer gene therapies, in the treatment of different forms of skin cancer has been a subject of intense research in recent times.

The treatment of patients undergoing immunotherapy or immunosuppressive therapy for dermatological illnesses has been significantly impacted by the COVID-19 pandemic, leading to increased vulnerability to infection (Arenbergerova et al., 2020). Consequently, dermatologists have been compelled to modify their treatment methodology and consider the unique circumstances of each patient. Certain recommendations propose that the initiation of therapy with a biologic medication should be assessed individually, taking into account the potential advantages and disadvantages for each patient. The decision of whether to maintain or discontinue biologic treatment for individuals with psoriasis during the pandemic necessitates a thorough evaluation of the patient's general health status and the possible hazards

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associated with contracting COVID-19. Several American institutions, including the National Psoriasis Foundation and the National Eczema Association, have released recommendations pertaining to the care of patients undergoing biologic or immunosuppressive medication amidst the ongoing epidemic (Saardi & Petronic-Rosic, 2021). The significance of patient education and joint decision-making in identifying the optimal course of action for each person is underscored by these recommendations. The COVID-19 pandemic has prompted a significant amount of scholarly investigation and examination concerning the utilization of biologic medications in the treatment of immune-mediated dermatological conditions (Maynard & Armstrong, 2023).

## Literature Review

Numerous investigations have been undertaken to assess the safety and efficacy of biologic medications in individuals with psoriasis during the COVID-19 epidemic. The findings of these research exhibit heterogeneity; whereas several studies have posited that biologic medications may not substantially augment the susceptibility to COVID-19 infection or severe illness, contrasting outcomes have been observed by other investigations. Despite the presence of inconsistent findings, a majority of dermatology societies, including the Canadian Dermatology Association and the American Academy of Dermatology, advocate for the continuation of biologic therapy in psoriasis patients during the pandemic. This recommendation is based on the recognition that the advantages of disease management frequently surpass the potential hazards. The significance of medication adherence in individuals with psoriasis has been underscored by the COVID-19 pandemic, in conjunction with the difficulties presented by immunotherapy and immunosuppressive therapy (Vakirlis et al., 2020). Inadequate self-management of drugs and failure to adhere to prescribed treatment regimens may lead to inadequate management of psoriasis symptoms and an elevated susceptibility to disease exacerbations. Furthermore, individuals diagnosed with psoriasis often exhibit a range of

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concurrent medical conditions, including hypertension, diabetes, and cardiovascular disease, which serve to exacerbate the challenges associated with their treatment and care within the ongoing epidemic (Ekinici et al., 2020).

In order to safeguard the health and welfare of individuals with psoriasis amidst the COVID-19 outbreak, it is essential for healthcare professionals to thoroughly assess the potential advantages and drawbacks of maintaining or ceasing the administration of biologic treatment, taking into account the unique circumstances of each patient. In addition, it is important for healthcare practitioners to place emphasis on patient education and effective communication in order to foster a collaborative decision-making process. This may include the provision of precise and current information to patients on the potential hazards and advantages associated with biologic treatment amidst the pandemic, alongside the resolution of any apprehensions or anxieties they may have. Furthermore, it is important for healthcare practitioners to establish a close collaboration with patients in order to formulate personalized treatment strategies that include their distinct medical backgrounds, coexisting conditions, and personal preferences. In addition, it is important for healthcare practitioners to maintain careful surveillance of individuals with psoriasis who are undergoing biologic treatment in order to immediately identify and address any possible side effects or problems that may arise throughout the course of the pandemic. The COVID-19 pandemic has prompted significant inquiries and apprehensions about the use of biologic medication among individuals diagnosed with psoriasis.

It is important for healthcare practitioners to be updated with the most recent recommendations and research in order to make well-informed choices and provide optimal treatment to their patients.

An important research, which was published in the journal Dermatological Therapy, investigated the use of biologic medications in the context of the COVID-19 pandemic. The research's findings suggest that the decision to discontinue or resume immunosuppressive

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therapies in individuals with COVID-19 should be approached with caution. However, it is important to note that there was a dearth of authoritative and dependable data about the susceptibility of immunosuppressed patients to SARS-CoV-2 infection at the time of the study. According to Conforti et al. (2020), individuals residing in regions with elevated risk factors are affected.

Conforti et al. conducted a study to investigate the possible dangers connected with the use of biologic treatment in individuals with psoriasis within the ongoing pandemic. The research findings first prompted worries over a heightened susceptibility to infection and a more pronounced progression of the illness, resulting in the suggestion to discontinue the use of biologic medications as a precautionary measure. Nevertheless, later research has provided evidence about the safety of biologic therapy in the context of the COVID-19 pandemic, hence advising against discontinuing such treatment. The aforementioned results underscore the significance of using evidence-based decision-making in the management of individuals diagnosed with psoriasis during the COVID-19 epidemic. Healthcare practitioners assume a pivotal role in providing guidance to patients with psoriasis about the use of biologic treatment amidst the COVID-19 epidemic.

Healthcare professionals must take into account the individualized requirements and specific circumstances of each patient when formulating treatment plans, all while adhering to current research findings and clinical recommendations. Furthermore, it is essential for healthcare practitioners to address the issue of treatment compliance among individuals with psoriasis during the ongoing COVID-19 epidemic. The need of ensuring adherence to therapy is crucial in order to maximize results and mitigate the risk of illness aggravation. Furthermore, it is important to take into account the possible ramifications of the COVID-19 pandemic on individuals with psoriasis who are undergoing biologic treatment, as highlighted by Ekinçi et al. (2020). Considering the inherent characteristics of psoriasis and its potential to cause both physical and psychological distress among patients, the cessation of biologic therapy may exacerbate the disease and its associated psychological consequences. Additionally,

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discontinuation of this treatment may potentially heighten the pro-inflammatory condition in patients, rendering them more vulnerable to severe SARS-CoV-2 infection (Potestio et al., 2021). The COVID-19 pandemic has prompted inquiries within the area of dermatology about the administration of immunosuppressive medications to individuals with psoriasis (Vakirlis et al., 2020).

The treatment of biologic therapy during the pandemic has sparked considerable debates and discussions among dermatologists.

In light of the prevailing uncertainty, professional dermatological associations have issued guidelines advocating for the ongoing use of psoriatic systemic therapies and biologics amidst the COVID-19 pandemic.

The aforementioned guidelines are derived on existing empirical research and are designed to strike a compromise between the advantages of therapy and the possible hazards associated with contracting COVID-19. The literature highlights the primary issues, following investigations, and advice pertaining to the use of biologic treatment in the context of the COVID-19 pandemic. The aforementioned research have provided evidence indicating that the use of biologic therapy in the treatment of psoriasis is deemed safe and does not contribute to an elevated risk or heightened severity of COVID-19 infection.

Nevertheless, it is imperative to acknowledge that these results are derived from a restricted dataset, and more investigation is required to comprehensively comprehend the impact of biologic treatment on COVID-19 infection among individuals with psoriasis. Based on existing information, it is advisable to maintain the administration of psoriatic systemic medications and biologic therapy, while considering individual patient characteristics and the regional incidence and gravity of COVID-19 infections. Nevertheless, the COVID-19 pandemic presents unique hurdles in terms of maintaining adherence to therapy among individuals with psoriasis. The onerous character of pharmaceutical self-management among individuals with psoriasis, in

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conjunction with the supplementary obstacles they may encounter as a result of comorbidities, might provide problems to patients' adherence to their treatment protocols during the epidemic.

Psoriasis is a persistent inflammatory dermatological disorder requiring prolonged therapeutic intervention.

The utilization of immunosuppressive medications, such as biologics, has brought about a transformative impact on the management of psoriasis, leading to substantial enhancements in disease control and the overall well-being of affected individuals. Nevertheless, the emergence of the COVID-19 pandemic has engendered novel apprehensions and contemplations pertaining to the use of these pharmaceutical substances.

The use of immunosuppressive medications, particularly biologics, during the COVID-19 pandemic has generated inquiries and worries among the dermatology community and among individuals with psoriasis. The possible hazards of COVID-19 infection and the impact of biological treatment on susceptibility and outcomes in psoriatic patients have been a subject of concern among individuals with this condition (Musumeci et al., 2021). In order to mitigate these worries, professional organizations in the field of dermatology have advised the ongoing use of systemic therapies and biologics for psoriasis patients amidst the current pandemic (Vakirlis et al., 2020). The guidelines provided are predicated on the premise that the use of biologic treatment among individuals with psoriasis does not provide an elevated risk or heightened severity of COVID-19 infection. Nevertheless, it is essential to acknowledge the constraints of the existing data and emphasize the need for more study in order to comprehensively comprehend the impact of biologic treatment on COVID-19 infection within this particular cohort of patients. Despite the scarcity of empirical data, scholarly research indicates a lack of substantiation for the notion that individuals with psoriasis are more susceptible to COVID-19 or that the use of biologics modifies the likelihood of acquiring SARS-CoV-2 infection or experiencing a more severe result of COVID-19 (Musumeci et al., 2021). While there is currently no empirical evidence indicating a heightened susceptibility or

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greater severity of COVID-19 infection among individuals with psoriasis who are undergoing biologic therapy, there remain apprehensions regarding the most effective approach to managing psoriatic patients amidst the pandemic and ensuring their adherence to treatment (Vakirlis et al., 2020). The user's text is too short to be rewritten in an academic manner. Psoriasis patients often exhibit concurrent comorbidities, including hypertension, diabetes, cardiovascular disease, and obesity, which might potentially exacerbate the challenges associated with their care within the COVID-19 epidemic.

## Findings

The potential association between biologic medication, often used in the treatment of psoriatic patients with coexisting conditions such as hypertension, diabetes, cardiovascular disease, and obesity, and the heightened susceptibility to developing COVID-19 and its severe consequences remains uncertain within the field of dermatology. According to the study conducted by Ekinci et al. (2020),... There is a paucity of literature on the prevalence and prognostic implications of COVID-19 in individuals with psoriasis who are undergoing treatment with biologic therapy. Furthermore, there is a dearth of information pertaining to the management strategies used for these patients, the monitoring and customization of their biologic therapy, and the potential emergence of novel comorbidities in the context of the ongoing pandemic. In order to effectively treat psoriatic patients during the COVID-19 epidemic, it is essential to design recommendations that focus on monitoring and tailoring biologic therapy for these individuals. Furthermore, it is important to evaluate treatment adherence among individuals with psoriasis throughout the COVID-19 epidemic, given that the self-administration of medications might pose significant challenges for patients in this arduous time. The comprehensive understanding of the effects of COVID-19 on individuals with psoriasis remains limited, and there is currently no substantiated indication that individuals with psoriasis are more susceptible to contracting



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COVID-19 or that the use of biologic medications heightens the danger or intensity of infection (Musumeci et al., 2021).

Nevertheless, there is ongoing controversy about the suitability of implementing preemptive discontinuation of biological therapy in individuals with psoriasis (Magnano et al., 2020). There exists a divergence of viewpoints about the potential discontinuation of biologic therapy as a preventative measure in individuals with psoriasis during the COVID-19 pandemic.

While the majority of individuals with psoriasis exhibit modest symptoms of Covid-19, advanced age is the primary determinant of severe infection, as opposed to the use of biological therapies. The potential association between biologic medication, often administered to psoriatic patients with coexisting conditions such as hypertension, diabetes, cardiovascular disease, and obesity, and the heightened susceptibility to COVID-19 infection and its severe manifestations remains uncertain within the field of dermatology. According to the study conducted by Ekinçi et al. (2020), it was found that... The current body of literature lacks comprehensive data on the prevalence and prognosis of COVID-19 in individuals with psoriasis who are undergoing treatment with biologic therapy. Consequently, the precise impact of biologic therapy on COVID-19 outcomes in this specific patient population remains uncertain.

According to the available research, it has been advised that patients undergoing biological therapy should maintain their treatment regimen during the COVID-19 pandemic (Musumeci et al., 2021).

This aligns with the guidelines put forward by dermatological associations, which advocate for the continuation of psoriatic systemic therapies and biological treatments.

The rationale for this approach stems from the potential consequences of discontinuing biological treatment, which may include disease worsening and a detrimental impact on the quality of life experienced by individuals with psoriasis. Furthermore, it has been observed that there is a lack of data indicating that biologic treatment has any association with an increased

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risk of COVID-19 or a detrimental impact on the progression of the illness in individuals with psoriasis (Magnano et al., 2020). Furthermore, the decision of whether to proceed with biologic treatment should be personalized and take into careful account the patient's overall health condition, presence of other medical conditions, and the extent of psoriasis or psoriatic arthritis. There are other considerations that need attention when determining the appropriateness of maintaining biologic treatment in individuals with psoriasis during the COVID-19 epidemic. Several factors contribute to the susceptibility of individuals with psoriasis or psoriatic arthritis to COVID-19. These factors encompass the severity of the aforementioned conditions, as well as underlying risk factors associated with COVID-19, such as advanced age, cardiovascular disease, hypertension, pulmonary ailments, diabetes, concurrent use of immunosuppressive medications, and the likelihood of exposure to the SARS-CoV-2 virus. The determination of an individual's risk of exposure to the virus is influenced by geographical location, occupation, and living arrangements (Talamonti et al., 2021). At now, there is a lack of established principles or research substantiating the use of preemptive cessation of biologic therapy in individuals with psoriasis during the COVID-19 pandemic (Magnano et al., 2020).

Nevertheless, it is essential to show prudence when dealing with individuals suffering with psoriasis who exhibit a positive test result for SARS-CoV-2 or have been officially diagnosed with COVID-19. In some instances, it may be justifiable to cease systemic therapy including biologic medications, given that the possibility of treatment-related side effects cannot be entirely ruled out. Hence, individuals diagnosed with psoriasis who exhibit a positive result for SARS-CoV-2 or COVID-19 should diligently observe their symptoms and seek guidance from their healthcare professional on the management of their condition.

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## Argument

Biologic therapy has significantly transformed the management of psoriasis and psoriatic arthritis within the domain of dermatology. Many therapies are designed to directly address the immune system dysregulation that is responsible for the development of many illnesses. As a result, patients see significant improvements in disease management and overall well-being. Biological treatments, such as inhibitors targeting tumor necrosis factor and interleukin-17, have shown significant success in the reduction of symptoms associated with psoriasis and psoriatic arthritis, leading to improved clinical results.

Nevertheless, the use of biological treatment within the framework of the COVID-19 pandemic presents significant concerns.

The comprehensive understanding of the effects of COVID-19 on individuals with psoriasis remains limited, and current information does not support the notion that psoriatic patients have an elevated susceptibility to getting the virus in comparison to the broader populace. Furthermore, there exists a scarcity of evidence about the epidemiology of COVID-19 among individuals undergoing biologic treatment for psoriasis or psoriatic arthritis. Hence, a lack of agreement exists about the decision to either maintain or cease biological therapy in individuals with psoriasis within the COVID-19 pandemic, as shown by Talamonti et al. (2021).

The decision of whether to proceed with this course of action should be contingent upon several individual considerations, including the extent of psoriasis or psoriatic arthritis, underlying risk factors for COVID-19 such as advanced age, cardiovascular illness, hypertension, pulmonary ailments, diabetes, concurrent use of immunosuppressive medicines, and the likelihood of exposure. The classification of the SARS-CoV-2 virus is contingent upon factors such as geographical location, occupation, and residential circumstances. Healthcare practitioners are advised to thoroughly evaluate these criteria while making the decision of whether to maintain or cease biologic treatment in patients with psoriasis during the COVID-19 pandemic. The

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decision to continue or discontinue biologic treatment in psoriatic patients during the COVID-19 epidemic should also include the guidelines and recommendations issued by relevant medical associations and regulatory entities. The determination of whether to maintain or cease biologic therapy in psoriatic patients amidst the COVID-19 pandemic necessitates a thorough evaluation of pertinent individual factors, including the severity of the disease and the presence of risk factors for COVID-19. Additionally, it is imperative to consider the potential advantages and drawbacks associated with the continuation of treatment. The cessation of biologic treatment within the framework of the pandemic.

In the context of the ongoing COVID-19 pandemic, it is advised that patients undergoing biologic therapy for psoriasis or psoriatic arthritis should maintain their treatment regimen, until they get a positive test result for SARS-CoV-2 or are officially diagnosed with COVID-19 (et al., 2021). In instances when an active infection is present, it may be justifiable to discontinue systemic therapy as a result of the potential adverse consequences associated with the treatment. In addition, it is essential for healthcare practitioners to maintain diligent oversight of patients undergoing biologic treatment for psoriasis or psoriatic arthritis, while also offering suitable counseling and support. Throughout the COVID-19 epidemic, there has been a persistent discourse and deliberation about the optimal approach to managing individuals undergoing biologic treatment for psoriasis or psoriatic arthritis.

Early concerns have been raised over the potential discontinuation of biologic treatment as a means to mitigate the risk of COVID-19 infection. Nevertheless, emerging research indicates that the choice of whether to continue with or terminate biologic treatment need to be predicated upon individual considerations, including disease severity and COVID-19 risk factors. Furthermore, empirical research has shown that the use of biologic therapies in the treatment of psoriasis does not exhibit a substantial elevation in the susceptibility to contracting COVID-19 or result in worse disease outcomes. Indeed, there have been documented cases of individuals with psoriasis who have received treatment with biologic medications and had favorable clinical outcomes in the context of COVID-19 (Montero-Vilchez et al., 2020).

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This underscores the need of taking into account the unique circumstances of each patient and carefully evaluating the possible advantages of maintaining biologic therapy in comparison to the potential drawbacks of quitting treatment. It is noteworthy to acknowledge that at now, there exists no consensus or empirical research substantiating the impact of maintaining or discontinuing biologic medication among individuals with psoriasis during the COVID-19 pandemic (Talamonti et al., 2021). Hence, it is essential for healthcare practitioners to practice prudence and engage in decision-making processes. Assessment is conducted on an individualized basis, considering the extent of the patient's psoriasis or psoriatic arthritis, with the underlying risk factors associated with COVID-19. Significant advancements have been made in the realm of dermatology pertaining to pharmacological therapy and immunotherapy, resulting in improved treatment options for a diverse range of skin disorders. The aforementioned advancements have significantly transformed the therapeutic domain, offering patients enhanced and focused therapy alternatives. One instance of innovation in the field of medication therapy pertains to the use of biologic pharmaceuticals for the purpose of treating psoriasis and psoriatic arthritis. Biological pharmaceuticals, such as inhibitors of tumor necrosis factor-alpha and interleukin, have shown significant efficacy in mitigating inflammation and ameliorating symptoms among individuals afflicted with these medical illnesses. Immunotherapy, a significant advancement in the field of dermatology, pertains to the activation of the patient's immune system for the purpose of addressing skin ailments. The aforementioned technique has shown efficacy in the treatment of illnesses such as melanoma and some forms of cutaneous cancers. Overall, advancements in pharmacological therapy and immunotherapy have significantly enhanced the efficacy of treatment for dermatological disorders. These advancements have not only facilitated patients with more effective and focused treatment alternatives, but have also enhanced their overall quality of life. The assessment of the influence of these advancements on patient care within the framework of the COVID-19 pandemic has significant significance.

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One of the salient concerns among individuals with psoriasis during this time is to the ongoing administration or cessation of biological therapy. In light of the scarcity of evidence about the potential risk of COVID-19 infection among individuals undergoing immunosuppressive treatment, it is important to make a well-informed choice regarding the continuation or discontinuation of biologic therapy by thoroughly assessing the unique characteristics of each patient. The patient variables include the severity of psoriasis or psoriatic arthritis, advanced age, pre-existing COVID-19 risk factors such as cardiovascular disease, hypertension, lung illness, and diabetes, concurrent use of immunosuppressive drugs, and the likelihood of being exposed to the SARS-CoV-2 virus. The factors influencing this phenomenon include geographical location, occupation, and residential circumstances. The consideration of the influence of maintaining or discontinuing biologic therapy on therapeutic efficacy and the holistic well-being of the patient is of significant importance. Currently, there exists a lack of agreement or empirical research about the effects of maintaining or ceasing biologic treatment in individuals with psoriasis during the COVID-19 epidemic.

Several suggestions have been proposed with regards to the use of biological treatment in individuals with psoriasis within the ongoing pandemic, as suggested by Montero-Vilchez et al. (2020).

These guidelines advise against discontinuing immunosuppressive medicines due to the potential development of anti-drug antibodies and the subsequent rise in illness flare rates among patients. Furthermore, it is essential to bear in mind that the sudden cessation of immunosuppressive medicines might result in a resurgence of disease activity and a possible exacerbation of symptoms. According to Musumeci et al. (2021), it is generally advised to maintain the administration of immune-modulating therapies, such as biological agents, in individuals with psoriasis during the COVID-19 pandemic. Insufficient evidence exists on the epidemiology of COVID-19 among individuals undergoing medical therapy. Nevertheless, a recent scholarly article documented a favorable clinical progression in four individuals with psoriasis who had treatment with biologic agents (Montero-Vilchez et al., 2020). The

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aforementioned results provide a degree of comfort about the safety and efficacy of biologic treatment within the ongoing epidemic.

In light of the scarcity of available evidence, it is typically advised that individuals with psoriasis persist with immune-modulating therapy, such as biologic medicines, amidst the COVID-19 pandemic (Musumeci et al., 2021).

This suggestion is predicated on the premise that it is justifiable to discontinue systemic medication in individuals with psoriasis who exhibit a positive result for SARS-CoV-2 or are afflicted with COVID-19, due to the possibility of untoward consequences associated with the treatment that cannot be entirely ruled out. Hence, it is of utmost significance for individuals with psoriasis to diligently observe and assess their symptoms, while engaging in comprehensive discussions with their healthcare practitioner on the effective treatment of their condition.

The current recommendations pertaining to the use of biologic therapy for individuals with psoriasis during the COVID-19 pandemic suggest that it is typically advisable to maintain the administration of immune-modulating treatments, which includes the use of biologic medicines. The suggestions presented below consider the possible hazards associated with treatment discontinuation, including the development of anti-drug antibodies and the aggravation of the underlying condition. It is important to bear in mind that the assessment of each patient's situation should be conducted on an individual basis, including variables such as the extent of psoriasis severity and the possible hazards linked to COVID-19 contagion.

In the field of dermatology, advancements in pharmaceutical interventions and immunotherapeutic approaches have significantly transformed the management of many dermatological disorders. The aforementioned advancements have had a substantial impact on the overall prognosis of those afflicted with dermatological conditions, notably psoriasis. Biological therapies that specifically target the immune system have shown significant efficacy

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in the treatment of psoriasis and other dermatological disorders. Various drugs function by regulating certain elements of the immune system that are implicated in the development of various disorders. Biological medicines that selectively target distinct immunological pathways have shown enhanced effectiveness in comparison to traditional therapeutic approaches, such as the use of topical corticosteroids or phototherapy. Furthermore, the safety of biologic therapy within the COVID-19 epidemic has emerged as a significant apprehension among healthcare professionals and those seeking treatment. The effects of the COVID-19 pandemic on individuals with psoriasis and the possible hazards associated with the use of biological treatment in this particular scenario have garnered significant attention. A number of scholarly investigations and expert suggestions have been disseminated pertaining to the utilization of biological treatment in individuals with psoriasis during the COVID-19 outbreak (Montero-Vilchez et al., 2020).

## Conclusion

In light of the available research and expert opinions, the prevailing consensus is that it is prudent to maintain immune-modulating therapies, such as biologic medicines, in individuals with psoriasis within the COVID-19 pandemic (Musumeci et al., 2021). The absence of empirical data presently indicates that individuals with psoriasis do not exhibit an increased susceptibility to getting SARS-CoV-2 or experiencing a more severe course of COVID-19. Moreover, the cessation of therapy has the potential to result in the worsening of diseases and the reactivation of underlying immunological disorders. Therefore, it is often advised to maintain the administration of immunosuppressive medications in those with psoriasis over the duration of the pandemic. Nevertheless, it is essential to use prudence in cases when a patient diagnosed with psoriasis has a positive test result for SARS-CoV-2 or presents with COVID-19. In some instances, it may be justifiable to cease systemic medication due to the potential presence of harmful effects that cannot be entirely ruled out. Individuals diagnosed with

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psoriasis who have a confirmed positive test result for SARS-CoV-2 or are afflicted with COVID-19 should exercise vigilant monitoring of their symptoms and seek guidance from their healthcare professional on the management of their condition. The rationale for maintaining immune-modulating medications, such as biologic medicines, in individuals with psoriasis during the COVID-19 pandemic is supported by many considerations. Initially, it is noteworthy that the likelihood of acquiring SARS-CoV-2 or experiencing a severe manifestation of COVID-19 is not substantially heightened in individuals with psoriasis in comparison to the broader populace. Additionally, there is a lack of empirical data supporting the notion that biologic treatment contributes to an elevated susceptibility to SARS-CoV-2 infection or exacerbates the prognosis of COVID-19 among individuals with psoriasis. Moreover, the cessation of biologic treatment for psoriasis in the context of the pandemic may give rise to an elevated pro-inflammatory condition, hence possibly augmenting vulnerability to infections and consequences associated with diseases. The endorsement to persist with immune-modulating therapy, such as biologic medicines, is substantiated by the following research and reports: The authors of a study conducted by Montero-Vilchez et al. (2020) provided a detailed account of a favorable clinical progression of COVID-19 in individuals with psoriasis who were undergoing treatment with biologic medications. The findings of these research indicate that individuals with psoriasis who undergo biologic treatment do not exhibit exacerbated outcomes or problems as a result of contracting COVID-19. Furthermore, the discontinuation of immunosuppressive drugs in individuals with psoriasis during the ongoing pandemic might potentially elevate the likelihood of producing anti-drug antibodies. This, in turn, may result in diminished treatment efficacy and a heightened incidence of disease aggravation. In summary, the prevailing guidelines for the biological treatment of individuals with psoriasis during the COVID-19 pandemic advise the ongoing use of immunosuppressive drugs as a means to mitigate disease aggravation and the formation of anti-drug antibodies. The advancements in medication therapy and immunotherapy within the realm of dermatology have yielded notable enhancements in the range of therapeutic alternatives accessible for diverse dermatological ailments. The aforementioned improvements have significantly transformed the approach to

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managing dermatological illnesses and have had a positive impact on the overall well-being of patients. An instance of innovation in the field of medication therapy may be seen in the use of biologic drugs that specifically target the immune system. These agents have shown significant efficacy in the treatment of several medical disorders, including psoriasis. Biological agents, also referred to as biologics, include pharmaceutical substances that originate from live creatures or are synthesized by genetic manipulation techniques. The approach involves the selective targeting and inhibition of certain proteins or molecules that play a crucial role in the development and progression of dermatological disorders. Through the selective targeting of certain molecules, biologic medicines have the capacity to efficiently regulate the fundamental inflammatory processes and related symptoms pertaining to dermatological illnesses. Immunotherapy, an additional pioneering strategy within the field of dermatology, encompasses the use of pharmacological agents to manipulate the immune system with the aim of attaining therapeutic outcomes. The progressions in medication therapy and immunotherapy have significantly broadened the range of treatment alternatives accessible for dermatological diseases, hence affording patients with enhanced and tailored healthcare. Furthermore, these advancements have enhanced the overall safety characteristics of dermatological therapies. In contrast to traditional systemic medications, biologics used in the treatment of immune-mediated dermatological illnesses have shown a superior safety profile.

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