

Review Article

Psoriasis: A Biological and Behavioral Management Approach

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Abstract

Psoriasis is characterized as a chronic inflammatory disease and while it is affecting a large percentage of the population worldwide it is linked to be triggered by a variety of reasons. It can be treated with topical, oral, intravenous, photochemotherapy, biologic agents or a combination of therapies, based on patient's needs or skin severity. Most of these therapies can be expensive or even difficult to receive. The red scaly plaques on the skin alongside with the underlying symptoms can affect the wellbeing of patients. Areas such as the type of dermatological treatment which causes a psychological burden to patients once they are diagnosed with psoriasis, as well as the need of a multidisciplinary approach for the management of psoriasis are briefly discussed in this article.

Keywords: Plaque Psoriasis; Psychodermatology; Biologic Agents; Psychotherapy; Wellbeing

Introduction

Psoriasis has been recognized as one of the most dominant and severe autoimmune diseases affecting almost 2-5% of the world's population [1]. As it is not completely understood yet, many factors contribute to the occurrence of psoriasis. Some of them include genetics, environmental, psychological reasons and triggers such as immune dysfunctions or treatments [1]. Furthermore, the physical and psychological distress can dramatically influence patient's everyday functioning as well as their perception of their body image and outside world [2-5]. The clinical representation of Psoriasis is described with red-white scaly plaques which can be well demarcated or disfiguring and according to the narrative of many patients repulsive [6,7]. Joint disease and psoriatic arthritis are often associated with psoriasis. One of the most common types of psoriasis is Plaque Psoriasis (also known as psoriasis vulgaris), which is often located on the scalp, genitalia, knees, elbows and

can also affect nails [8,9]. It is most common in adults before the age of 35 and not so common in children (about 0.71 of cases) [8,9]. For an appropriate clinical diagnosis, the family and medical history of the patient is taken, combined with a physical examination on the skin, scalp and nails, whilst a biopsy might also be recommended to determine the exact type of psoriasis. There are several differential diagnoses such as lichen planus, pityriasis rosea or ringworm of the body, which need to be excluded before the official diagnosis of psoriasis [10,11]. If psoriatic arthritis is suspected, then the patient is referred to a rheumatologist for further examination. Usually, an X-ray is required in order to determine if there is a case of psoriatic arthritis or not [10].

Pathophysiology

Psoriasis was considered to be an epidermal keratinocyte disorder, but based on current literature the best description would be immune mediated disorder. Skin has an immunological system which consists of cytokine synthesized keratinocytes, T-cells (epidermotropic), antigen cells, draining nodes and dermal capillary endothelial cells. Psoriasis is characterized by a continuous inflammation which leads to the proliferation of keratinocytes. This leads to the recruitment and overactivation of T-cells (white

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blood cell type). T-cells then release inflammatory molecules including Tumor Necrosis Factor Alpha (TNF- Alpha), interferon - gamma and interleukins IL-17, IL-23 and IL-22 [12]. The red- white scaly plaques clinical representation of psoriasis is a result of the T-cell overactivation [13].

Management and Treatment of Psoriasis

Topical Therapies

As psoriasis cannot be cured completely, there are therapies and treatments that can improve patients' quality of life. Firstly, topical therapies are recommended, which can cause irritation on the skin and they can be also lengthy [14,15]. Patients' often report their discomfort during topical therapies, as well as negative feelings which accompany the burden of living with a visible skin condition [16,17]. The right administration of any topical therapy depends on the severity of the condition. The categories of topical therapies include topical steroids and dithranol applications.

1. **Topical Steroids:** Usually topical treatments come in a form of creams, ointment formulations or gels. For the right administration, it is important to know how mild or severe the condition of psoriasis is. Corticosteroids (cortisone induced) are known for reducing inflammation. This particular therapy may take days to weeks in order to bring the desired results and a dermatologist's supervision is required [18]
2. **Dithranol Applications:** Dithranol Applications are used for well-defined plaques of psoriasis and they must be administered really carefully since any contact with non-affected skin can be irritating. This type of therapy cannot be used on the face area, between the legs, or under arms. Patients can store at home the application of dithranol preparations, since they come in a form of creams or ointments that the patient must apply once a day. It takes up to six weeks for patients to see notice desired difference [18]

Ultraviolet Light Therapy for Psoriasis

UV therapy is a treatment that many doctors prescribe for psoriasis and which can be used combined with other treatments. UV therapy can take up to eight weeks. Skin however can be itchy after the treatment, red and dry, for this reason patients are advised to look after their irritated treated skin.

1. **UVB Therapy:** This therapy is used for many years in order to treat psoriasis. It is most used to treat generalised plaque psoriasis and guttate psoriasis. Sometimes the treatment is called NBUVB or TL01. A part of this phototherapy requires the patient to stand in a light cabinet for a few minutes approximately three times a week with the duration being for 6 to 8 weeks [18]
2. **PUVA Therapy:** Since UVA light cannot treat psoriasis on its own, psoralen is administered in combination in order to sensitize the skin to UVA light. Psoralen must be taken approximately two hours before the treatment in a form of tablets or applied with cream or gel to the area that is affected. Usually if topical treatments or UVB therapies fail to treat psoriasis, UVA takes place to treat severe or moderate psoriasis [18]. Like UVB light treatment, PUVA requires to stand in a light cabinet for a few minutes two times a week for about eight weeks. This is normally applied in general hospital settings and the cost is covered by each country's health system. Patients often report that the cost of the specific therapy burdens their lives and it is also time consuming. This influences patients' economic status as well as their quality of life [18]

Systemic Treatments

Systemic treatment is often described as the treatment which affects the whole body and is usually used to treat severe or moderate cases of psoriasis. Like PUVA, systemic treatments are administered when topical therapies or phototherapies fail to treat psoriasis or at least improve the clinical representation of plaques. Although these treatments can be really effective, they can cause a variety of side effects [19]:

1. **Methotrexate:** Methotrexate is administered either by injection or orally and is an immunosuppressant which can be taken once a week. Its results are normally shown between four to six weeks. It suppresses the overactive immune system and the possible side effects in short term treatment include nausea, whereas in longer duration treatment it may cause serious liver damage. For this reason, people that have liver dysfunctions, anaemia or other similar medical conditions are advised to undergo this treatment with caution [20,21]. For all the above reasons, liver and blood testing are required, however, if the patients are not covered by their health insurance, the financial consequences can again influence their quality of life
2. **Cyclosporine (sandimmune or neoral):** Cyclosporine is a drug that also suppresses the immune system and reduces the rapid growth of skin cells. Only people with severe cases of psoriasis can take cyclosporine. It is administrated orally and while it

can minimize severe plaques of psoriasis, the disadvantage is that it is only effective while is being used and not after the completion of the treatment. Cyclosporine can cause high blood pressure, cholesterol and kidney problems. Patients who undergo PUVA therapy are often advised not to take cyclosporine [22]. Patients often report their discomfort after the completion of the treatment with cyclosporine, since the plaques reappear

Biologic Agents for Psoriasis

Biologic drugs appear to be amongst the most important treatment options for patients with severe psoriasis or psoriatic arthritis. They are proposed when all the previous mentioned treatments have failed to bring the desirable effects and they improve patients' quality of life significantly. They are injected or they are applied intravenously. They target specific parts of the immune system in contrast with the traditional methods that can affect the entire immune system. The mechanism is based on the blocking of T-cell action or the blocking of specific proteins in the immune system. TNF-alpha and interleukins 12 and 23 are two known examples [15]. TNF-alpha Blockers: The most popular TNF-alpha blockers are Humira (adalimumab), Remicade (infliximab), Simponi (golimumab) and Enbrel (etanercept), which can block the action of TNF-alpha. The mentioned drugs have approximately the same mechanism of action. Most specifically Humira (adalimumab) can treat severe psoriasis and psoriatic arthritis, while the patient must inject the drug once a week by himself. Since Humira is an immunosuppressant, it makes people vulnerable to infections and diseases. Patients undergo examinations for Tuberculosis (TB) before they start administrating the drug and the side effects which are often reported include respiratory tract infections, rash, headache and abdominal pain [19]. Due to the discomfort caused by the possible side effects of Biologic treatments, people often experience high levels of health anxiety. Unfortunately, the purchase of biological treatments can be proved to be a privilege especially in non-European countries, as the cost is often defined by the protocols and regulations of each country. Thus, the administration setting as well as the coverage of the costs is often supported by a governmental sector.

Psoriasis and Diet

Patients are often advised to follow an anti-inflammatory diet which include the elimination, identification and the rotation of allergenic foods [23,24]. A gluten- free diet has been shown to improve patients' symptoms and bibliography shows that if patients' weight is under normal BMI they can be benefited, whereas overweight patients appear to have more psoriasis outbursts [2]. Proinflammatory eicosanoids and anti-inflammatory eicosanoids are mainly influenced by the fatty acids that patients consume. The anti-inflammatory diet includes the good fats like seeds, nuts, olive oil, cold water fish, good quality oils and vegetables. Patients should avoid the bad fats like fried food, trans fats, saturated animal fats and refined carbohydrates. Hence a diet with high Omega 6 fatty acids (meat, eggs, vegetable oil, dairy) can decrease the inflammatory response [25]. For this reason, the role of the clinical dietitian can benefit patients in order to understand how their eating habits influence their immune system. This intervention is often reinforced if it is combined with the cooperation of a clinical psychologist.

Psoriasis and Wellbeing

Since Psoriasis appears at early developmental stages, patients experience high levels of anxiety and depression, whilst others might suffer from metabolic syndromes, diabetes and hypertension which may interfere with their sleeping pattern [26,27]. Many studies also support that psychiatric symptomatology in patients with psoriasis may also cause severe paranoid ideation [26,28]. Recent studies seem to focus on how patients experience their dermatological condition, since the severity of skin condition is not always correlated with the extent of psychological burden experience [29,30].

Studies have shown that young patients with psoriasis often report a distorted body image, while adult patients might avoid sexual acquaintances and social interactions (e.g., visiting the gym, swimming in pools) [5,31-34]. Suicidal ideation is often reported in patients who often chose social isolation for long periods of time and who do not wish to undergo any treatment [35]. Obsessive compulsive symptoms such as checking constantly the skin affected area as well as alcohol consumption and decreased self-esteem are considered crucial, since they are often reported in recent studies [26,36,37].

One-to-one psychotherapy sessions might be beneficial for patients, especially in flare up periods of the disease, while group therapy or Cognitive Behavioral Therapy (CBT) might empower patients by providing them cognitive tools via the group empathy experience [28,38-40]. Cognitive Behavioral Therapy (CBT) can be a helpful way to manage the negative emotions psoriasis can cause. CBT helps patients to change their negative thoughts that are linked with intense negative feelings, so that

the person with psoriasis will have milder depressive symptoms. Some patients with psoriasis are considered to be very good candidates for SSRIs and other psychopharmacology options, if the skin condition is left untreated for long periods of time [41]. All the above psychological symptoms, seem to decrease when patients actively combine dermatological and psychological care [4]. More qualitative research is needed as well as quantitative research, before and after the completion of dermatological treatment. A very few studies in the literature have focused on the above-mentioned psychological areas [29].

Conclusion

It is important to emphasize on the existence of all biological and behavioral therapies, which can help patients with psoriasis to cope with all the difficulties presented at all stages of the treatment. If patients follow the guidelines of their dermatologists', as well as if they join one-to-one or group psychotherapy sessions, then the stigma experience associated with psoriasis can be reduced. In this way, patients are treated by a multidisciplinary approach, which includes both biological evaluation (type of treatment depending on the severity of the skin disease and the percentage of the plaques covering the body), as well as psychological (effect on patient's body image and quality of life). Based on this approach, we believe that a multidisciplinary approach will benefit not only on the evaluation and treatment plan of psoriasis by dermatologists, but also the reduction of the psychological effects that accompany the skin disease, whereas it will aim to reduce the possible resistance to treatment observed in many patients. In conclusion, the recognition of many psychological factors during dermatological treatment, will help to manage important clinical barriers such as anxiety and depression and which are essential in the way patients follow the guidelines of their dermatologists. Briefly, dermatological treatment can be reinforced if it also concludes counseling and psychotherapy, since it will improve adherence to treatment guidelines, which associates with a more positive quality of life.

Conflict of Interest

The authors have no conflict of interest to declare.

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